



COAL AGE



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The Two Brothers

We are responsible for much of the progress of the world.

We it is who have made possible the finding of a North Pole, the digging of a Panama Canal, the wresting of electricity from nature, the invention of a telephone.

We have raised up a peasant and set him on the throne of a kingdom.

We make the difference between the slave groping in the mud and the sage who knows the planets intimately.

We pour out our gifts to all those who seek us.

Among our votaries are the old and the young, the rich and the poor, the great and the humble. And to all we give some of our gifts; to some we give all.

Those who labor in the dark caverns of the earth owe us a great debt.

We have sent our followers to carry the sustaining air to the innermost recesses of the mines; to fill the passages with a light as bright as day; to drive out the poisonous vapors and

gases that lurk in secret places to destroy the lives of those who labor; to drain the waters from the mines or to convert them into spray to control the treacherous dust.

We have other and personal blessings to bestow. In our gift is gold—the evidence of success. We offer position and power.

We make happy homes that are greater than banks or battleships.

We give strong bodies and clear brains to make the earth an abode of happiness and peace.

We build up righteous communities. We overcome discontent. We banish disease.

We put our followers on a level with all men. We sharpen the sympathies that they may understand the humble. We quicken the intellects that they may take their proper place in the counsels of the great.

We promote health, happiness, faith.

We are brothers—we are called Education and Industry.

By GEO. N. LANTZ, New Straitsville, Ohio

Motor Haulage and Side Tracks--I

By GEORGE S. BRACKETT*

SYNOPSIS—In planning a new mine or extending an old one, the coal-haulage system requires careful consideration. This is the first of two articles on this subject. The treatment is not detailed, but rather a general view of the entire problem and a protest against the haphazard, hit-or-miss methods often employed in laying out a mine transportation system.

In planning the development of a mine, the initial consideration is the location of the opening and the laying out of the headings or roads by which the coal must be transported from the working face to the tipple. The next essential is provision for circulating air, which demands that there must be at least two headings. Subordinate to this, but nevertheless important, is the prospective projection of the headings throughout the entire coal area in order that they may reach and exhaust all the sections, points, knobs and windgaps. From the main face heading are broken the main butt headings. These in turn produce face headings and butt room headings, divid-

The major portion of transportation expense is not consumed by the main haulage motor, but rather by the gathering of the coal from the working face to the side track or tracks. Evidently then it is this gathering to which most attention should be given. The actual straight motor haulage must be secondary to the gathering proposition, and if convenient should accordingly be sacrificed to the more expensive operation so as to reduce the gathering expense. The primary object of the main motor haul is to render the gathering more economical. When it fails in this it has fallen short of its most important duty.

Like the system of ventilation, the system of haulage to be adopted strongly influences the planning of the mine workings and headings. In developing any mine of considerable tonnage, the method to be adopted in the motor-line extension should be kept well in mind when the workings are being laid out. The entire property must be considered in this connection. There is little excuse for not having the mine workings provide for the extension of the motor haul the same as they do for the ventilation, so that actual moving of the side tracks forward to keep pace with the advancing workings is not the



FIG. 1 RUNAROUND

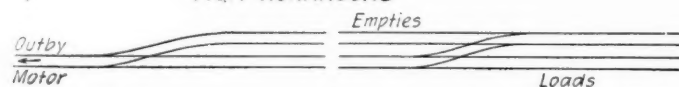


FIG. 3 DOUBLE-LENGTH PARTING WITH CROSS-OVER



FIG. 2 THREE-TRACK PARTING

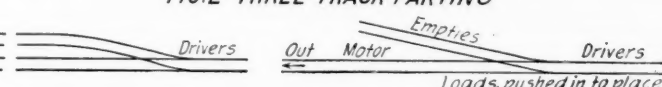


FIG. 4 BACK SWITCH

FIGS. 1 TO 4. FOUR FUNDAMENTAL SIDE-TRACK ARRANGEMENTS

ing the property into panels or batteries of rooms. It is here in the design of the development that the matter of motor haulage should be considered.

Much has been published on the question of motor haulage—the track, trolley, hangers, speed, capacity and cost of operation; but the question of the practical design of the general system to conform with different mine workings and the nature and location of the passings and junctions has been scarcely touched.

This article is not a detailed account of motor construction, weights, effective grades, curve and switch limits, but rather a view of the question in its entirety—where the motor should go, the kinds and number of junctions and side tracks advisable and their location. It is a protest against the common method of installing motor haulage without initial consideration and only through necessity when the animal haul becomes prohibitive on account of the distance traversed. In such an instance the motor is installed with its single terminal at a convenient place outside of the first working heading, or if a few of the first headings are on the decline in production, they are abandoned and passed by the main motor haulage, to be exhausted only as the final working retreats toward the mine mouth. It is difficult to place a single terminal side track so that the driver's haul from it to the working faces will be economical throughout.

*Flemington, W. Va.

momentous question which it usually is. The headings, cross-headings and cross-cuts should be laid out so as to conform with the side-track and haulage plan and should be kept clean where the parting tracks are needed.

When gathering is done by motor the necessity for keeping the side tracks advancing is not as important as where animals are used. The economy of gathering by motor is more evident as the distance from the working face to the straight-haul junction increases. Where the motor has the advantage over horses and mules is when it collects 15 or 20 loads and speeds off to the side track 2,000 or 3,000 ft. away. Correspondingly its inefficiency is manifest when it makes a long trip for one or two loads or where the main junction is so close that most of its time is spent in actual gathering to the room necks.

The point of principal importance in laying out motor side tracks is the junction with the horse or mule haulage, and a full understanding of this difficult part of the question requires little other information to adapt it to the junction of express and gathering motors. Most mines do their gathering with animals, while motor gathering is in the minority.

For convenience in description, it is assumed that the main heading is a face heading from which butt or room headings are broken every 300 or 400 ft. The arrangement of the side tracks at the junction points of

these headings covers the question completely, as the conditions there existing are identical with the junction points of the main butt and face headings. The problem is accordingly confined to the face main and its butt or room headings.

Following the undisputed hypothesis that the motor road must be kept close up to the driver's haul in order to keep the cost of the latter down to its most economic point, the necessity of numerous side tracks is evident.

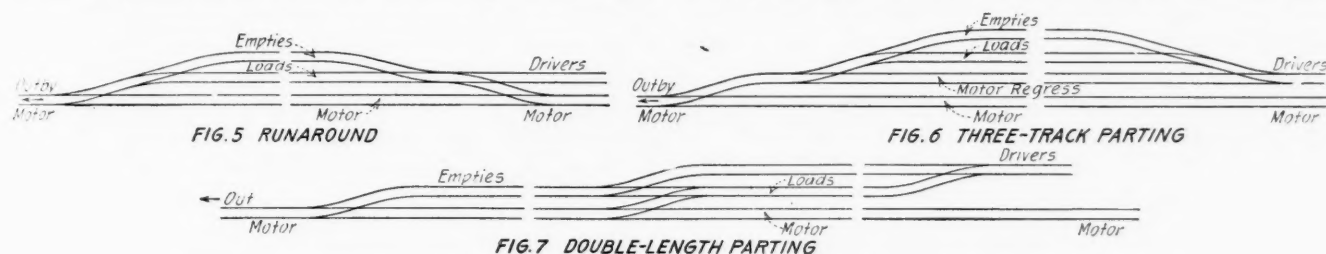
In some mines there may be certain deficiencies of equipment which prevent this. A single motor may not be able to work all the side tracks that are advisable or there may not be enough mine cars to feed the required number of partings; for the more terminals there are, the more mine cars are needed. These local conditions may prevent temporarily the adoption of the main motor haul which would give the most economical gathering, yet it does not alter the fact that there is a most economical way of handling the coal, and an examination of the cost will show that the additional equipment would be a paying investment.

If one main-haul motor will not feed all the partings that are advisable, there should be two, and if there are not enough mine cars there should be more. There are two ways of looking at every question—what is actually the best way and the cheapest way of moving the coal (this

conditions, and the corresponding readjustment of the haulage to the end that all the integral parts of the system may work at their most economic speed and so that the most frequent delays should affect the fewest possible men. It is no economy to have an hour's delay under the tipple stop the entire mine, motor and drivers for the same period. With properly arranged side tracks, a reasonable surplus of power and empty mine cars and track accommodations for them, there is no reason why the mine should not continue to operate for a reasonable time, holding the loads on the side tracks and tipple tracks until the dumping starts again. The tipple and main haulage should accordingly be sufficient to recover in a short time from the congestion caused by the delay. In other words, in order to keep the greater expense (the gatherers) working steadily, there must be some surplus capacity in the main haulage and tipple. This is an economic arrangement.

The ability of the mine management to meet all the requirements of a motor haul—or all that it is practical to meet—depends on a full and complete knowledge of all the kinks used in motor haulage and side tracks. With this in view I have collected illustrations of all the side tracks that I could in order to embody them for reference.

Figs. 1, 2, 3 and 4 give four fundamental side-track arrangements from which all side tracks or terminals may



FIGS. 5 TO 7. ADAPTATIONS OF STANDARD PARTINGS TO INTRA-TERMINAL WORK

should receive much attention in a mine layout) and what is the best and cheapest way this can be done with the equipment on hand. If additional equipment is not obtainable, it is usually a question of arranging a straight haulage so that there is as little time lost as possible at the terminal, keeping the number of side tracks down with a view to getting them as close to as many workings as possible. This merely approaches the most economic condition and is the best that can be done under the circumstances. The most economic design is one that does not permit any driver to have a haul greater than may be operated efficiently or that allows any motor to take a long journey for less than a full trip. When this exists coal haulage is being done economically.

A mistake frequently made in examining mining costs is a failure to look at the question in proper integral parts. The main haulage is one distinct part and the gathering of the coal another. Each should be handled on the most economical system irrespective of the other. On a properly arranged main or express haulage there is little difference in the transportation cost for a thousand feet or for a mile. The latter haulage is equipped with heavy motors and good track and operates heavy trips. The former worries along with a light motor and usually poorly surfaced track.

There is, however, a vast difference in the economy of mule-gathering over short and long hauls. As the mine workings advance there are constantly changing condi-

tions, and the corresponding readjustment of the haulage to the end that all the integral parts of the system may work at their most economic speed and so that the most frequent delays should affect the fewest possible men. It is no economy to have an hour's delay under the tipple stop the entire mine, motor and drivers for the same period. With properly arranged side tracks, a reasonable surplus of power and empty mine cars and track accommodations for them, there is no reason why the mine should not continue to operate for a reasonable time, holding the loads on the side tracks and tipple tracks until the dumping starts again. The tipple and main haulage should accordingly be sufficient to recover in a short time from the congestion caused by the delay. In other words, in order to keep the greater expense (the gatherers) working steadily, there must be some surplus capacity in the main haulage and tipple. This is an economic arrangement.

With reference to their use, side tracks may be classed under three different heads with two subdivisions each. These are, 1, junctions of animals and motors—(a) terminal, (b) intra-terminal to feed a heading along a continuous motor road; 2, junction of main and gathering motors—(a) terminal, (b) intra-terminal; 3, for two or more main haulage motors—(a) passing, (b) meeting.

Figs. 5, 6 and 7 illustrate the changes necessary to adapt standard partings for intra-terminal work.

JUNCTION OF ANIMALS AND MOTORS

We may consider first the simplest form of motor haulage; namely, one motor, one straight track and one terminal side track inside the mine, beyond which lie all the producing sections. The difficulty in the permanent adoption and maintenance of this form is that the forward workings are calling for a closer side track before the complete exhaustion of the older sections will permit an advance. The result is that some workings are often abandoned before they are exhausted, in order to move the parting up to and get it closer to the advancing portion of the mine.

These older sections have passed the prime of their production and are expensive to operate, while the long animal haul from the more favorable section renders their operation expensive. This results in a high operating cost. Had this original terminal side track been first constructed with a view of extending the motor road to pass it as soon as necessary in such a form that it could have been left in position without interfering with the extension beyond, the rear section could have been completely exhausted without delaying the extension of the motor road until the forward driver's haul became extreme and the cost of gathering rose to a prohibitive point.

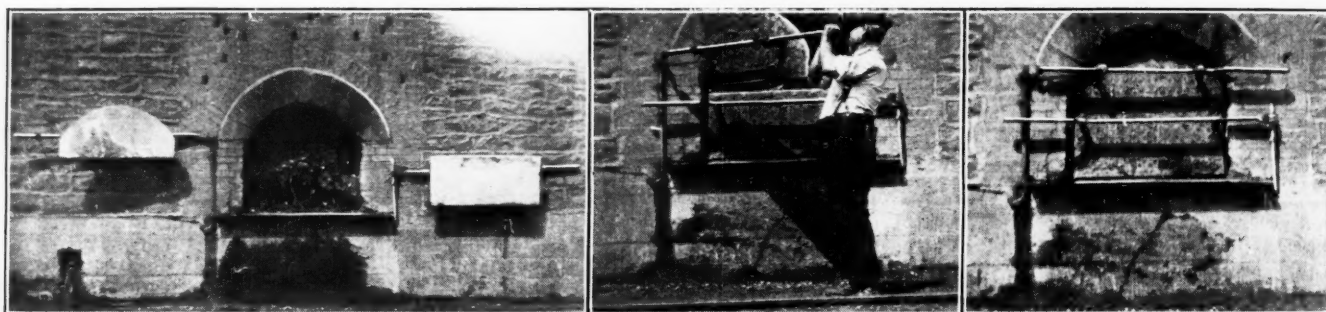
The main issue, which must not be obscured, is that the motor haul is the means by which the animal gathering may be done economically. The design of the haul should therefore be such that this is accomplished in its maximum. It should reach every section of the mine within a reasonable distance or driver's haul from the point of production. Although this may require additional motor power, it is nevertheless provident. It is not simply a single track with a single terminal placed at such a point as to "strike a happy medium" in accommodating all the workings. It is a series of branches with terminal and intra-terminal partings, each placed so as to give the greatest efficiency in the gathering of the coal

under every section of the land in the western part of the state. It is difficult to form an idea of a mass containing even 1,000,000 tons, and hence the figures given above are practically impossible of comprehension; but if the amount is put in the form of a cube, a better conception of its magnitude may be obtained. The lignite of the state, if formed into one mass in the compact form in which it lies in the ground, would make a cube 5 mi. long, 5 mi. broad and 5 mi. high. Such a cube would cover nearly a township of land and would be almost as high as the highest mountain on the globe.

Much of the lignite, although of poor quality and at present used only in a small way, constitutes a vast fuel resource which will in time become of great value, not only to the individual citizens of the state but to the corporations that are seeking power for use in manufacturing or in transportation.—*Northern Pacific Guidebook*, Geological Survey.

New Beehive Coke-Oven Door

The use of permanent doors for beehive coke ovens has recently made important advances, mainly because of the economies thereby effected. It is evident that there is a demand for this improvement or there would not be so many types on the market, nor would engineers and prac-



FIGS. 1 TO 3. TORMAY DOOR FOR BEEHIVE OVENS

In Fig. 1 on the left the door is shown open; the center, Fig. 2, shows the attendant closing the upper leaf, and the right illustration, Fig. 3, shows the door completely closed and ready for luting

from each and every heading or section of the mine until these sections are exhausted.

A side track that serves the purpose of a terminal for the motor haul and at the same time supplies that particular heading at its head when the motor haul is extended to feed the advancing workings without change or alteration is a practical impossibility. This change, however, from a terminal to an intra-terminal side track should be, for the sake of economy, as small as possible and made with the least possible expense. It is an important point in laying out the motor haulage and its side tracks to have in mind all the time the questions, Where will the next parting be? and, Have provisions been made to pass on beyond this in the most economical way?

Great Lignite Resources of North Dakota

Lignite underlies almost all the western part of North Dakota. It is estimated by the United States Geological Survey that the state contains the enormous amount of 697,000,000,000 short tons of lignite in beds over 3 ft. thick and within 1,000 ft. of the surface, and it seems probable that there is workable lignite within this limit

tical mining men show such activity in designing new doors. P. J. Tormay, who was for many years superintendent of the Trotter works of the H. C. Frick Coke Co., near Connellsville, Penn., and who is a well-known practical coal and coke expert, has devised and is patenting the door illustrated.

The hinge part in some respects resembles that of the Lucia door manufactured by the Covington Machine Co. The lining and the methods of retaining it in place are somewhat similar to those of the Auld and McMurray types of doors. The door is fitted to take the plastic clay "daub" which is already well known in the beehive industry, being used by the Taylor Coal and Coke Co., at Searight shaft, Uniontown, Penn., and other concerns.

DOOR IS IN TWO PARTS AND WEIGHS 300 LB.

The Tormay door is simple, easily operated and of low first cost. It can be installed for \$10 complete, including the lining. No changes have to be made to the oven from such as are necessary with most permanent doors. All such changes add to the cost of installation. The low first cost of the new device should appeal to small operators, as such a door will pay for itself in less than six months from the savings effected in yield and materials.

As will be noted from the illustrations, the doors are in two sections, the lower half being swung to one side of the oven and the upper half to the opposite side, both sections resting on supports in the oven wall. However, both halves may be arranged without any difficulty to swing to the same side. The door has a back, made of 1/2-in. soft steel, and the daubing clay is retained on it by the extension of the metal from punch holes at regular intervals, which act as substitutes for the rivets, or fingers, in the Auld and McMurray types of door.

The lower half, with the "daub" on it, weighs approximately 160 lb., and the upper half, 140 lb., making a total weight of only 300 lb. for the entire door, including the daub, whereas other types of doors on the market weigh much more. The door has for all practical purposes a "solid back" and will not leak air and thus burn up coke.

DOOR IS INEXPENSIVE, BUT AIR-TIGHT

In Fig. 1 the door is shown open. The coke stands high in front, is well burned and shows no ashes or cutting out in front. The lining of the door faces outward, so that the coke boss can readily see whether it needs repair. In the illustration it is shown burned into a solid brick, with no shrinkage or fire cracks. Cracks that develop on the first firing are easily plastered shut. The door in question has been in service three months, with no repairs of any kind.

Fig. 2 shows the ease with which the door is opened and closed. One man can easily swing it around into place if the hinge is rigid. To take the strain off the hinge, it should be supported as much as possible by the operative in swinging it around.

Fig. 3 shows the door closed. It is luted along the sides with the ordinary loam mortar. Of course somewhat more luting will be required with a door of this type than with some of the others on the market, which are fitted with special iron frames. Especially is this true if the jambs are not kept in good repair. This trouble would not be experienced on plants operated by hand.

Mr. Tormay does not claim for his oven the permanent features of other types of oven doors. His claim is that his is a good, cheap door, which will probably last two or three years, and which should show a liberal return on the investment. Figuratively speaking, it should prove to the small operator what the Ford car is to the automobile trade.

Shipping Losses from the War

The total gross tonnage of all ships captured, detained, sunk or damaged as a result of war operations during the first 13 months of the European war (Aug. 4, 1914, to Aug. 31, 1915), according to an official press association connected with the British War Office, amounted to nearly 4,000,000 tons and numbered close on to 3,000 vessels, as follows:

	Ships	Tonnage
German.....	521	1,113,298
British.....	476	980,773
Neutral.....	418	593,820
Austrian.....	75	154,282
Allied, French, Russian, Belgian.....	82	128,177
Turkish.....	56	18,508
Total.....	1,628	3,088,858

In addition, cargoes (or part of them) of 776 vessels (ranging from a tonnage of 500 to 25,000) have been de-

tained, in many cases without delaying or seizing the ship itself.

Details of German vessels which have been swept off the seas follow:

	Ships	Tonnage
Detained in United Kingdom and overseas ports.....	146	315,181
Captured in German colonial ports.....	21	43,367
Captured and sunk by British.....	8	29,424
Captured by British.....	75	186,765
Detained in Egyptian ports.....	18	86,038
Detained in Belgian ports.....	89	136,920
Detained in French and Russian ports.....	95	112,945
Detained in Italian ports.....	36	153,876
Captured and sunk by Allies.....	4	3,822
Captured by Allies.....	25	37,985
Sunk or damaged by submarines, mines or explosions.....	4	6,975
Total.....	521	1,113,298

Out of the 80 detained British vessels in German ports, more than 60 were lying at Hamburg at the outbreak of the war. Fifty-six British vessels were captured or sunk by enemy ships. The number sunk by submarines is given as 104, of 304,428 gross tons; 105 trawlers, of 15,087 tons, in addition to 31 vessels of the same class (with a tonnage of 4,229) sunk by mines or explosions. Of the Allied vessels, 14 of 37,048 tons were captured and sunk and 34 of 51,145 tons were sunk by submarines.

Engineers' Emergency Level

Every engine room has the means at hand for the construction of the convenient and accurate level described herewith. It is so simple to make as to appeal to anyone (*Power*, Aug. 31, 1915).

It consists of an ordinary gage-glass, nearly filled with water, and with its ends plugged with putty or other suitable material of a cementing nature. The bubble



A GAGE-GLASS LEVEL

may be made as long as desired. As the glass is straight, the bubble will run throughout its length when one end of the tube is slightly elevated. The glass being round and usually reasonably straight, it can be turned over without affecting the location of the bubble or the accuracy of the level.

As the glass is straight and not curved to a radius like a tube constructed for leveling purposes, it is not necessary that the bubble be brought to the center. If the glass is perfectly true it will be level when both ends of the bubble are free from the cemented extremities.

The accuracy of the tube is attested by the rapidity with which the bubble passes from end to end of the glass on being slightly tilted from the horizontal position. It can be further tested by revolving the tube, part of a full turn, or by reversing its ends and noting if the bubble still remains with both ends free after this is done. If it does, its indications are, probably reliable. This device is not intended to supplant the regular level, but it will serve in an emergency or when only a limited space is available.

Alabama Operators' Duty to Provide Props—The Alabama Coal Mines Act of 1911 should be interpreted as imposing an absolute duty upon operators to keep on hand a sufficient supply of props and timbers for use of miners in propping, and to deliver them on demand, but if those furnished are of suitable lengths and sizes no negligence can be imputed to an operator for failing to furnish props of the exact length demanded by a miner. (Alabama Supreme Court, *Sanford vs. Stith Coal Co.*, 68 "Southern Reporter," 990.)

Outlook in Coal Mining

SYNOPSIS—Opinions of prominent coal-mining people throughout the United States as to the present condition and prospects of the coal-mining business. The verdict is almost unanimous in favor of greatly improved conditions this fall and winter.

More than 1,000 mine owners and officials of operating and selling coal companies were asked by the editor of *Coal Age* to give expression to their beliefs concerning the outlook in the coal trade this winter. Replies were received from every important producing field, and the following opinions are printed in the order of their receipt. No attempt has been made to eliminate unfavorable reports, so that the general verdict may be accepted as voicing the common opinion of American coal men.

The question submitted was as follows: What is the outlook for the coal business in your particular field this fall and winter? The replies follow:

NEW YORK CITY

Bulah Coal Mining Co., Brisk
John Delaney, Mgr., Pittsvein Coal Co., Good
W. A. Marshall & Co., Very good
B. Nicoll & Co., Very good; prices up

ALABAMA

S. J. Childers, S. J. Childers & Son, Jasper, Better
G. B. McCormick, Pres., Pratt Cons. Coal Co., Birmingham, Light this fall
Erskine Ramsay, Gen. Mgr., Pratt Cons. Coal Co., Birmingham, Much improved
J. C. Maben, Jr., V. P., Sloss-Sheffield S. & I. Co., Birmingham, Greatly improved within next 60 days due to rapid improvement in steel and iron business.
Sligo Coal Mining Co., Gadsden, Very much better
John R. Smith, Supt., Eagle Coal Mining Co., Jasper, Very good. We are opening a new mine and installing a new washery

ARKANSAS

Wm. C. Caudle, Gen. Mgr., Arkansas Valley Coal Co., Hackett, Moderately good

COLORADO

Pike's Peak Fuel Co., Colorado Springs, Very good in lignite coals
W. W. Curtis, Pres., Rapson Coal & Mining Co., Colorado Springs, Good
Charles Rankin, Gen. Mgr., Monument Valley Coal Mining Co., Strong, Fair

ILLINOIS

C. M. Wasson, Gen. Mgr., Wasson Coal Co., Harrisburg, Fine; extra good
P. G. Matheny, Sec., West End Coal Co., Springfield, Good
H. C. Adams, V. P., Jones & Adams Coal Co., Chicago, Greatly improved. Cars are scarce. Short cold spell would tax the Illinois mines.
E. C. Searls, Gen. Mgr., Majestic C. & C. Co., DuQuoin, Good
Charles Pointon, Sec., New National Coal & Mining Co., Belleville, Good
West Side Coal Co., Coulterville, Extra good
Thos. J. Edwards, Edwards Coal Co., Edwards, Very good
F. S. Peabody, Pres., Peabody Coal Co., Chicago, Good, with shortage of cars
Warren Penwell, Sec., Penwell Coal Mining Co., Pana, Good

INDIANA

John Hewitt, Gen. Mgr., Vandalia Coal Co., Terre Haute, Rushing
Bicknell Coal Co., Bicknell, Good
J. W. Frisz, Gen. Mgr., Kettle Valley Mining Co., Terre Haute, Good
Clay Moss, Gen. Mgr., United Fourth Vein Coal Co., Linton, Good
Sunbeam Coal Co., Terre Haute, Good
H. G. Conrad, Gen. Mgr., American Coal Mining Co., Bicknell, Good, but may be interfered with by car shortage, which is apparent at present. Some mines idle on this account

IOWA

F. H. Hunter, South Des Moines Coal Co., Des Moines, Normal
Anchor Coal Co., Ottumwa, Good
H. F. Garver, Pres., Enterprise Coal Mining Co., Des Moines, Good

Ogden Cons. Coal Co., Boone, Good; much better than last fall
K. G. Carney, Mgr., Saylor Coal Co., Carney, Good; men will be scarce
E. M. Sprecher, Gen. Sales Agt., Moulton, Good

KANSAS

Carr Coal Mining and Mfg. Co., Leavenworth, Heavier than usual
S. S. Patton, Gen. Mgr., The Patton Coal and Mining Co., Frontenac, Good

KENTUCKY

Kentucky Block Coal Co., Hazard, Good. Mines are running full time with orders ahead. New mines being hurried to completion
R. L. Wheeler, Pres., Brush Creek Mining and Mfg. Co., Wheeler, Extra good. High prices will prevail
J. L. Manring, Pres., Winona C. & C. Co., Middlesborough, Very good
Kentucky Block Cannel Coal Co., Cannel City, Good. A car shortage is threatened
C. N. Riker, Pres., Carbondale C. & C. Co., Paducah, Below normal; prices off
A. G. Spillman, Gen. Supt., St. Bernard Mining Co., Earlington, Good
W. O. Davis, Kentucky River Coal Corp., Lexington, Good. Operations all behind in orders
W. E. Davis, Gen. Mgr., East Tennessee Coal Co., Hazard, Excellent
Blue Grass Coal Corp., Hazard, Very good

MARYLAND

Wm. Ramsay, Frostburg, Very good. In Frostburg district all mines in full operation. Labor shortage surrounding districts

E. J. Roberts, Allegany Coal Co., Westernport, Fair
J. E. Hibline, Quemahoning Coal Co., Baltimore, Exceedingly good

MISSOURI

Farmers Fuel Co., Higginsville, Good on domestic coal
A. J. Moorshead, Pres., Madison Coal Corp., St. Louis, Only hope of industry in this vicinity is weather. A stiff winter may permit operators to secure some profit
Mt. Olive & Staunton Coal Co., St. Louis, Dependent upon weather
F. W. Lukins, Pres., Farmers Fuel Co., Kansas City, Good crops and good business are improving coal trade

Eureka Coal Mining and Mercantile Co., Rich Hill, Better than last fall
Laning-Harris Coal and Grain Co., Kansas City, Fair

MONTANA

R. J. Johannes, Pres., National Fuel Co., Helena, Best in history of state
Bear Creek Coal Co., Bear Creek, Especially good

OHIO

Harper Coal Co., Coalton, Good
Russell Coal and Mining Co., Cleveland, Above average. Business doubled in past 10 days. Mine running full time
John M. Wright, Pres., Raleigh C. & C. Co., Cincinnati, Good
Edward Lynch, Gen. Supt., Colburgh Coal Co., Baileys Mills, Good
The Pocock Coal Co., Massillon, Good
E. E. Learned, Sec., Elk Coal Co., Columbus, Good
Puritan Coal Co., Cambridge, Very good
W. R. Woodford, Pres., Rail and River Coal Co., Cleveland, Much better. Demand for coal improving owing to better business conditions

Edward T. Evans, Gen. Mgr., T. J. Evans Coal Co., Coalton, Fair

OKLAHOMA

H. C. Fellows, Henryetta, Exceptionally good. Junior coal company installing monster Bucyrus shovel. Fidelity Fuel Co. expects to sink two shafts
J. J. Pullen, Pres., Warden-Pullen Coal Co., Henryetta, Good

PENNSYLVANIA

(Anthracite)

A. B. Jessup, Gen. Mgr., G. B. Markle Coal Co., Jeddo, Better than past two years this fall and winter
T. M. Dodson, Gen. Mgr., Dodson Coal Interests, Bethlehem, Good
John A. Komara, Pres., West Mountain Coal Co., Jermyon, Very good
George F. Lee Coal Co., Wilkes-Barre, Very brisk. There will be big demand for coal which will be difficult to supply

E. H. Leaning, Gen. Mgr., Nay-Aug Coal Co., Scranton, Good
Chas. Schlager, Sales Agt., Traders Coal Co., Scranton, Very brisk

(Bituminous)

J. A. Gealey, Mgr., Leesburg Coal Co., New Castle, Much better
P. S. Thropp, Jos. E. Thropp Co., Everett, Nearly full time
W. V. Whiteman, Gen. Supt., Stauffer-Quemahoning Coal Co., Listie, Good. Car supply short
Keystone C. & C. Co., Pittsburgh, Better than for five years past
A. N. Cole, Gen. Supt., Pennsylvania Coal Co., Clarion, Good

Lloyd G. McCrum, W. H. Bradford & Co., Inc., Somerset.....	Very good. Now suffering from car and labor shortage
A. C. Speyer, Moreland Coke Co., Pittsburgh.....	Fair
E. J. Fraunheim, Jr., Pres., Logansport Coal Co., Pittsburgh.....	Greatly increased demand and better prices
Republic Iron and Steel Co., Republic	Good
A. Beam, Pres., Pine Run Coal Co., New Bethlehem.....	Better demand, and if there is a car shortage, better prices
H. Wigton, Pres., Morrisdale Coal Co., Philadelphia.....	Very active
B. F. MacCartney, Pres., Sugar Run & Dunbar Coal Co., Altoona.....	Very good. Not much change in prices, but big improvement in tonnage
George T. Robinson, Pres., Cone-maugh Smokeless Coal Co., Johnstown.....	Very good. Looks like shortage of labor here
C. P. Burtner, Gen. Mgr., C. P. Burtner Coal Co., Altoona.....	Better. Shortage of labor and cars will restrict output
M. W. Saxman, Pres., Ligonier Coal Co., Latrobe.....	Good
W. S. Blaisdell, Anita Coal Mining Co., Punxsutawney.....	Good (Coke)
Thomas McCaffrey, Gen. Mgr., Brier Hill Coke Co., Brier Hill.....	Better than it has been since 1912. Shortage of miners
A. Q. Davis, Gen. Mgr., Browning Coke Co., Uniontown.....	Better than for two years
S. A. Carson, Gen. Mgr., Southern Connellsville Coke Co., Uniontown	Good. Expect high prices on both coal and coke due to shortage of miners. This is becoming more pronounced each day
Wm. Allison, Mgr., Union Connellsville Coke Co., Uniontown.....	Very good
T. S. Lackey, Pres., Buckhannon River Coal Co., Uniontown.....	Good. Independent operators in Fayette County expect \$3 coke before spring
James Edgar Husted, Gen. Mgr., Husted-Seamans C. & C. Co., Uniontown.....	Very good. Coke business improving each month. Men will be scarce in 60 days
TENNESSEE	
James R. Wooldridge, Pres., South Appalachian Coal Operators Assn., Knoxville.....	Good. Less coal than usual has been yarded. European War will not affect weather where our coal is used
Wm. J. Brown, Pres., Hazard Coal Land Co., Bristol.....	Very good. Our lessees report abundance of orders at good prices
J. H. Jones, Gen. Supt., Durham Coal and Iron Co., Soddy.....	Decidedly better
S. W. Jayne, Sales Mgr., Climax Coal Co., Knoxville.....	Very good. Not over 50% of stocks on hand and indications of a car shortage
J. J. Campion, V-P., Carolina, Clinchfield & Ohio Ry., Johnson City.....	Very good
TEXAS	
L. C. Libby, Mt. Pleasant.....	Fair
UTAH	
George A. Storrs, Gen. Mgr., Spring Canyon Coal Co., Provo.....	Good
VIRGINIA	
C. B. Neil, Secy., Raven Red Ash Coal Co., Red Ash.....	Very good
J. L. Moon, Gen. Mgr., West Virginia Coal Co., Richmond.....	Exceptionally good
C. J. Creveling, Blackwood C. & C. Co., Blackwood.....	Good
WEST VIRGINIA	
J. W. Bischoff, Gen. Supt., Davis Colliery Co., Elkins.....	Better than for eight years. We are spending considerable money to be able to take care of increased business. Big problem is labor supply.
George W. Jones, Mgr., Star Coal and Coke Co., Red Star.....	Good
H. A. Zeller, V-P., West Virginia Rail Co., Huntington.....	Good. Mines working better and prices higher
A. S. Brady, Pres., Brady Coal Co., Piedmont.....	Very good
E. C. Watson, Gen. Mgr., Masteller Coal Co., Keyser.....	Reasonably active. Demand is increasing and prices advancing
H. S. Brown, Secy., Extrapoca Coal Co., Bramwell.....	Good
Joshua Keely, Gen. Mgr., Cabin Creek Coal Co., Kayford.....	Fair
M. Moore, Gen. Mgr., Coal River Co., Ottawa.....	Very much better. Many companies declining to accept orders even at advanced prices
Ex. H. Tait, Pres., Great Scott C. & C. Co., Morgantown.....	Very good. Shortage of miners and cars
P. Brady, Gen. Mgr., Monongalia Coal Co., Fairmont.....	Very good
E. Echols, Treas., Big Bend Coal Co., Dimmock.....	Fair
G. Bradley, Gen. Mgr., Elk River Coal & Lumber Co., Dundon.....	Booming
WYOMING	
J. Quealy, Gen. Mgr., Kemmerer Coal Co., Kemmerer.....	Fairly good, but considerable over production
H. Larsen, Gen. Mgr., Nebraska Coal Co., Rawlins.....	About the same as usual

Extracts from a Superintendent's Diary

For some time we have been attempting to enforce the company rule that prohibits more than one day's supply of explosives to be taken into or stored at any time in a working place. It has been a trying experience.

Last week one of our firebosses suggested that we confiscate each night all of the explosives found in a working place where a full tonnage of coal had been loaded.

We discussed the matter fully and decided to adopt the suggestion without notifying the men of our decision. We assumed that the men who found themselves victims of the plot would keep silent rather than expose their malfeasance, and thus in time we could punish all of them.

Everything would probably have worked out according to schedule, but for the fact that one of our firebosses (Tom Murry) believes in practical jokes and could not resist the opportunity offered.

The day after we confiscated the first lot of explosives, Tom spread a rumor among some of the miners (picking his men so that the tale would reach indirectly certain hotheads whose powder had been confiscated) that a certain union official (Sam Rawlings by name) hadn't bought a pound of explosive in two weeks.

Tom builded better than he knew. Not one of the victims of the powder raid stopped to inquire into the source of the rumor, but every last one of them started out to find the union official on whom suspicion rested. It happened that the suspect was not at work that day, and as this became noised about to the men in the mine, suspicion was strengthened; so much so, in fact, that all of the victims began to plan openly for revenge.

In order to get the evidence in shape to justify extreme measures they appointed a committee to go to the commissary and find out just how much powder Sam really had purchased during the past 30 days. That would give them evidence that could not be questioned. The committee carried out their instructions, but when they learned that the commissary records showed Sam Rawlings to have purchased in excess of the average quantity for the month, they were dumfounded and did not know what to do or say. Instead of going back to report, they hung around, trying to fathom the mystery.

In the meantime Sam Rawlings got word that a committee was hanging around the commissary and for some reason which the messenger did not understand they were making frequent mention of Sam's name.

As soon as Sam got rid of the messenger he carried out a determination that he had had in contemplation for some time—he packed all of his belongings in a suitcase and disappeared into thin air. That same night one of our commissary clerks who knew more than he cared to divulge about Sam's reasons for departing so unexpectedly also left camp, covering his tracks as he left.

All's well that ends well, but in this instance all did not end well for the practical joker who started the ball of adventure to rolling so violently in our midst. The commissary clerk who had assisted Sam Rawlings in his treachery (whatever it may have been, and which from present indications apparently will always remain a mystery) boarded with Tom Murry, and when he quit so unceremoniously, he left behind a board bill amounting to \$20, which in the course of human events would have been paid the following Monday.

Proposed System of Longwall Mining in Panels

By F. C. CORNET*

SYNOPSIS—A system of mining by longwall faces arranged in panels is here described. All haulage roads and airways are maintained in solid coal. For a given output fewer switches are required and the work is more concentrated.

No longwall mining scheme is likely to make itself attractive which does not permit of developing the mine and reaching a given output as rapidly as would be the case with the old reliable room-and-pillar system. In every case quick results are an important condition.

The scheme submitted probably realizes this end as nearly as it will ever be practicable to do when the absence of refuse material prevents the building of pack

probably be necessary to develop it in order to reach an output of not less than 1,000 tons in a 9-hr. day, using only one man in each place, narrow or wide, and allowing a space of 20 ft. to each loader working on longwall. No crosscut is counted as a place. The dotted lines in Fig. 1 show what little amount of extra development would be necessary in order to increase the output by about 300 tons. As may be seen from Fig. 1, a long face is primarily formed by one of the ribs of what has been designated as a long room. The so-called border rooms, driven on the same course as the lateral entries and consequently at 90 deg. with the long room, always well ahead of the latter, determine the length of the long face, which in this case is 500 ft., although it could well be made substantially longer.

The long rooms and border rooms are driven wide, as are also the crosscuts or passageways by which the border rooms are reached from either the corresponding lateral haulage or air course. This reduces the amount of narrow work in a given entry to exactly what it would be in the case of the room-and-pillar system. Fig. 2 shows how ventilation and haulage are done, the second panel right having been selected from Fig. 1 and drawn on a much larger scale in order to make plainer such details as overcasts, stoppings, regulators, curtains, haulage tracks and switches and also the directions of all air currents.

The distribution of air shown in Fig. 2 is probably the most advisable one in the case, but it would not be difficult to show one or two other systems of haulage tracks just as good as the one here drawn.

FACE IS SUPPLIED WITH CARS FROM BOTH ENDS

The tracks shown in Fig. 2 are so arranged that the lower half of a longwall face is supplied with empties and the loads removed from the lower end, while the service of the upper half is effected from the upper end. This makes it unnecessary to stop all work in more than one-half of each face while a trip of cars is being changed. It also cuts in half the number of cars to be taken in or out at one time. Twelve or 14 cars might well be handled by one gathering motor, while 24 or 25 cars would be too many to be pushed in or pulled out by the same machine at one operation.

In figuring the output of the mine shown in Fig. 1, it has been assumed that a coal loader requires 20 ft. of space in order to work freely and at his full efficiency, loading 12 tons a day. This would place 25 loaders along a 500-ft. face, loading 300 tons a day. In this coal, a machine cut $5\frac{1}{2}$ ft. deep and 500 ft. long will yield 600 tons; consequently, two days will be necessary to load out one cut.

If necessary, by allowing only 10 ft. of space to a loader, placing 50 men on each face instead of 25, a cut could be cleaned up in a day; but this might prove too crowded a condition and one which would not give each man enough space and freedom to load all the cars he could get. The 20-ft. space adopted in the output calculations is

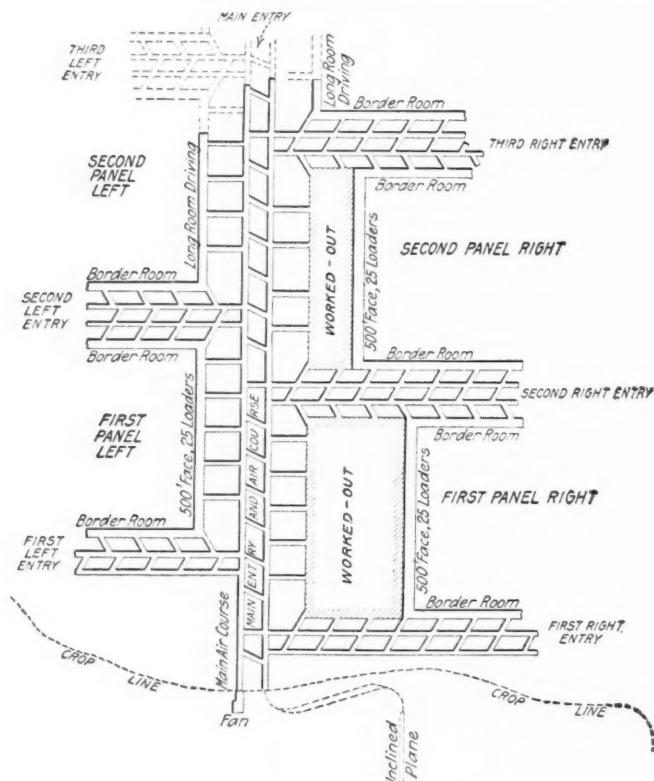


FIG. 1. SHOWING HOW IT IS INTENDED TO DEVELOP THE MINE

walls and all haulages and airways must be maintained in solid coal. The seam for which the system was primarily devised is 55 in. thick, all clean coal, nearly flat, and makes no water. All conditions that go toward making longwall mining advisable are met with in this seam. Observations made in old workings warrant the expectation that simple propping, using posts of 5 in. diameter set 7 ft. apart in both directions, will maintain, for months if necessary, a clear space of 20 to 30 ft. between the edge of the falls and the working face. Fig. 1 shows how it is intended to develop the mine, the full lines indicating to what extent it will

*317 Laidley St., Charleston, W. Va.

perhaps a little large for one man, but this only shows that there is no exaggeration in an output of 300 tons a day from a 500-ft. face.

In case of necessity, the loading force could be increased to, say, 35 men, and while under these conditions

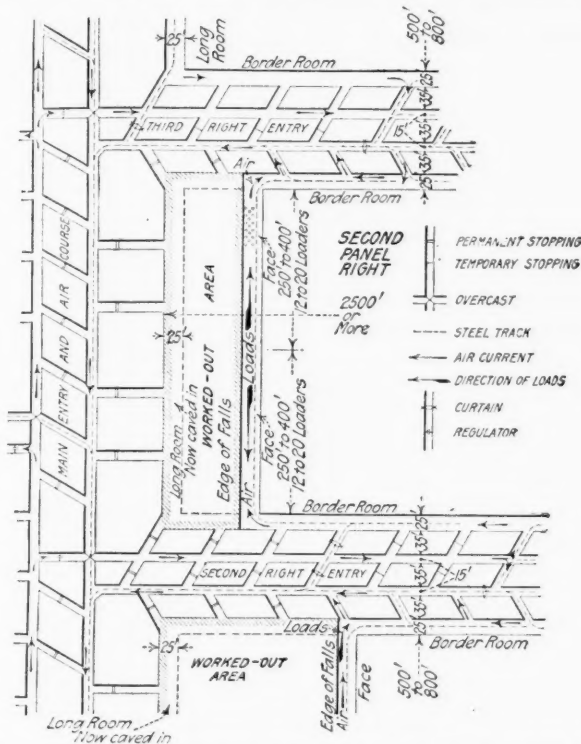


FIG. 2. PLAN SHOWING VENTILATION AND HAULAGE

the output per man might be reduced to $11\frac{1}{2}$ tons per day, it would increase the output of a face to 402 tons per day. All mining men will easily remember occasions in their experience when they would have been glad to increase by 33% and with little trouble the output of some part of their mine.

Fig. 3 shows how a room-and-pillar mine would appear after driving the same total length of narrow work as

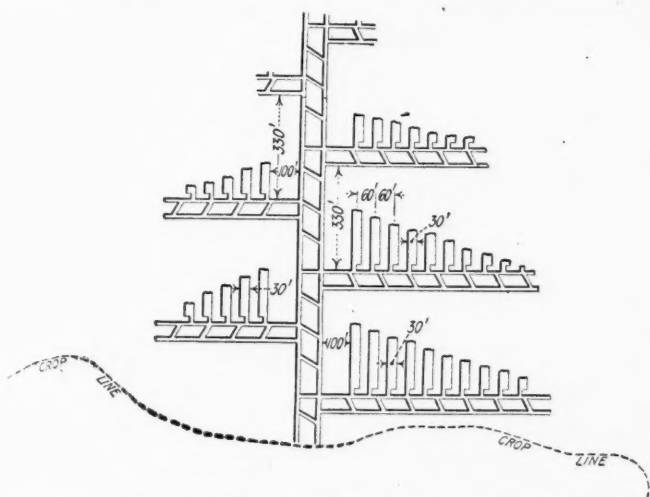


FIG. 3. A ROOM-AND-PILLAR MINE WITH SAME LENGTH OF NARROW WORK

in the longwall mine shown on Fig. 1. In both cases, the total length of haulways and airways is 7,680 ft. It is absolutely fair to suppose that the development work in the room-and-pillar operation would not be done quicker than in the longwall case. Fig. 3 shows the

mine with all rooms 30 ft. wide, driven on 60-ft. centers, all the rooms being 300 ft. long. All this is considered good practice in the coal field under consideration. The same thickness of protective pillar, 100 ft., has been kept on each side of the main entry and air course in both the room-and-pillar and the longwall cases.

The accompanying table gives a good idea of the comparative standings of the two mines so far as the operating features and outputs are concerned. These figures speak for themselves and need no comment.

COMPARISON OF TWO SYSTEMS OF DEVELOPMENT

Longwall Mine:	
Men on longwall, 75, loading 12 tons each.....	900 tons
Men in wide places, 10, loading 11 tons each.....	110 tons
Men in entries, 12, loading 10 tons each.....	120 tons
Total conservative output of the mine per day.....	
1,130 tons	
Total length of narrow work.....	
7,680 ft.	
Total length of steel tracks.....	
8,450 ft.	
Number of switches in the mine.....	
35	
Room-and-Pillar Mine:	
Men in wide places, 39, loading 11 tons each.....	429 tons
Men in entries, 16, loading 10 tons each.....	160 tons
Total conservative output of the mine per day.....	
589 tons	
Total length of narrow work.....	
7,680 ft.	
Total length of steel tracks.....	
9,120 ft.	
Number of switches in the mine.....	
54	

New Coal Rates in Ohio

There is no car congestion in Ohio as yet, although the railroads appear to have some anxiety along these lines. It has been stated on what appears to be good authority that the situation in Ohio so far as the railroads are concerned will be relieved in the near future by a re-adjustment of rates and that Toledo will become the basing point in fixing the new rates on coal shipped from Ohio and West Virginia mines to points in Ohio, Michigan and Indiana. New coal freight-rate schedules, it is stated, will be filed with the Interstate Commerce Commission within 30 days.

The railroads that have become parties to the agreement are the coal-carrying lines of western Pennsylvania, Ohio and West Virginia. The new schedule will increase by 60 per cent. the differentials in favor of Ohio coal as against West Virginia coal. The rate on West Virginia coal to Toledo is to be 40c. greater, according to the agreement, than the rate from the Ohio mines. The rates on West Virginia coal to all other points in Ohio, Michigan and Indiana are to be increased proportionately. This action is designed to relieve the situation in the Hocking and other Ohio coal fields, where mines are closed and miners are suffering greatly.

W. A. Gosline, Jr., head of the Toledo Chamber of Commerce and president of W. A. Gosline & Co., in a recent interview concerning the matter said: "The proposed increase in rates will help some, but will not entirely solve the problem. There are other important elements that have contributed to the closing of the mines and the consequent deplorable plight of the miners. Among these are conditions imposed by the miners themselves that the operators have been unable to meet. If the problem is to be solved entirely the miners must meet the operators half way. The increased differential in favor of Ohio coal is but one step. The state screen law is no longer much of a factor, as some of its most serious provisions have been eliminated." Mr. Gosline is doubtful whether the action of the railroads will influence the reopening of the mines.

Repairing Broken Tapes

By H. M. WASSUM*

Steel measuring tapes are frequently broken even when handled carefully. The repairing of a broken tape has often been a somewhat lengthy job and one not relished by the average mine engineer. However, it has well been said "that necessity is the mother of invention," and within late years the mending of a broken tape takes only a few minutes' time.

Many surveyors carry a small vial containing a solution composed of zinc chloride ($ZnCl_2$) and a little water, a small coil of $\frac{1}{8}$ -in. round solder and several thin strips of tin about $\frac{1}{2}$ in wide. Sleeves just large enough to slip over the ends of the tape can be quickly made from the tin. After the dirt and rust have been thoroughly scraped off the tape and the broken ends brightened the latter are dipped in solution and the tin sleeve slipped on.

By holding an open light or a match beneath the sleeve, the tin and tape, being thin, will heat rapidly, and if the solder is then touched to the joint it will melt and fill all the spaces. If too much solder sticks to the joint it can be brushed off before it cools, and a neat, strong joint is the result.

There is now on the market a kit called the "Eureka Tape Repairer." It is a small round box containing a dozen tin sleeves cut to the correct width and coated with solder solution. The box also contains a small piece

of emery cloth for use in brightening the broken ends. Complete directions are printed on the box and if followed a neat joint as strong as the original tape can be secured. The kit can be carried in the vest-pocket and has the advantage of containing nothing breakable.

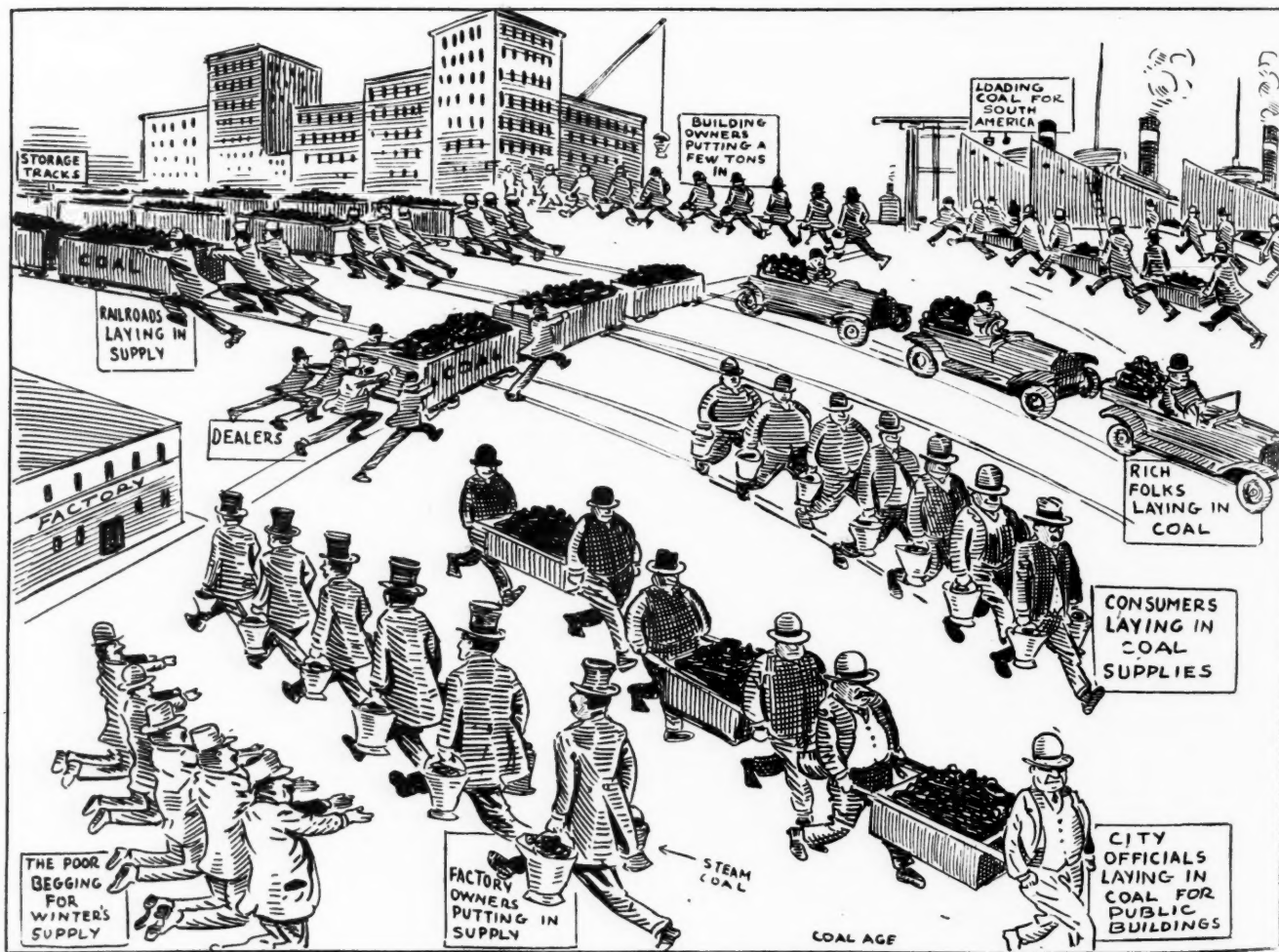
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An Electric Safety Lamp

In 1912 the British Home Office held an international competition for the best electric mine-safety lamp, open to all competitors both British and alien. There were 197 competitors, a number of whom were British. Though their lamps contained many excellent qualities, with characteristic fairness the first prize was awarded to a German firm—the Concordia Electricitäts Actien Gesellschaft of Düsseldorf. This lamp was known as the "Ceag."

In 1913 this same lamp took first prize at Ghent, and this year the Concordia Safety Lamp Co., Inc., of Pittsburgh, Penn., was awarded approval No. 12 of the Bureau of Mines for safety, efficiency and practicability under the exacting schedule 6A. The lamp thus approved was substantially the same as that awarded first prize in the British competition. As a further recognition, the Concordia Safety Lamp Co., Inc., was awarded a gold medal at the Panama-Pacific International Exposition. This award was made in recognition of the excellence of the electric mine lamp presented and of the lamp house and accessories. The firm was also given a silver medal in recognition of the exhibit that it made in collaboration with the United States Bureau of Mines.

*Brier Hill Coke Co., Brier Hill, Penn.



EVERYBODY'S DOIN' IT!

Analysis of the Coal-Car Situation

COMPILED BY A. T. SHURICK

Supplementing the article on the car-supply outlook which appeared in *Coal Age* of Sept. 25, p. 506, we present herewith some statements received since the previous article was printed.

BALTIMORE & OHIO R.R.

The matter of car supply is receiving careful consideration and plans are being formulated to meet the situation by expeditious handling and loading along scientific lines. Orders were also placed during the last few months for additional coal cars and contracts let for rebuilding part of our present equipment. The outlook this year is similar to that of 1913, when traffic was unusually heavy; but in view of the purchases of new equipment since then, both cars and locomotives, it is believed that the business will be handled with even greater facility. Another favorable factor is the improvement work completed since 1913, providing additional tracks, yards and other facilities.

During the last month the board of directors authorized the construction of what will be the largest coal pier ever built, costing approximately \$1,500,000 and having a capacity of 10,000,000 tons a year. This will require about eighteen months to build, so it will not be available this year; but it indicates the provision which the road is making for future terminal facilities. This road has expended during the last five years about \$100,000,000 for general rehabilitation, extra running tracks, larger yards and bigger docks and equipment.

Chief among these improvements were the third and fourth track lines on the eastern end of the system in the mountainous districts, where grades were reduced and curves eliminated. The Magnolia cutoff, a 12-mi. short line east of Cumberland, which provides a low-grade line for coal traffic, was opened recently. This involved an expenditure of about \$6,000,000. The average trainload over that section of the line has been raised from 550 tons in 1910 to 1,132 tons at the present time.

A large classification yard has been constructed at Grafton, W. Va., with a capacity of 1,200 cars. To further facilitate the movement of coal from the Grafton, Fairmont and other regions of West Virginia to the Great Lakes a bridge was built across the Monongahela River between Hayward and Lumberport, which has also been augmented by a yard at Hartzell, W. Va., for the making up of trains for the lake traffic. This has made it possible to route the heavy traffic over the light grades of the West Virginia Short Line and the Ohio River branches. The yard at Holloway, Ohio, was enlarged for the coal destined to the lakes.

To meet developments in the Somerset region of Pennsylvania we have built a 9-mi. extension of the Quemahoning branch. A large assembling yard, used chiefly for coal, with a capacity of 450 cars, was constructed at Somerset, Penn. A low-grade line was built between Backwood and Garrett, as a part of the enlargement of facilities in the Somerset region, which makes it possible to operate trains of maximum tonnage.

At Baltimore the capacity of the receiving yard in the Curtis Bay coal terminal was increased to 2,390 cars by adding facilities for 800 extra cars.

Since July 1, 1909, the road has bought 33,153 freight cars, 25,000 of which were for the coal trade, and 691 locomotives, of which 595 are in freight service.

ILLINOIS CENTRAL R.R. Co.

By W. L. Park, Vice-President

From the experience gained in handling the coal traffic of the 1914-15 coal season the Illinois Central finds itself unusually well equipped to take care of the prospective traffic of the 1915-16 season.

Great strides were made during the last coal season toward placing the Illinois Central in a physical condition to handle all the traffic offered. The additions made to the coal-car equipment, as well as freight engines and switch engines, together with grade reductions, new second track, yard extensions and improved mechanical facilities, which were undertaken or completed during that time, have been unusually large. These included an investment of about \$11,589,000 for new rolling stock, as follows: 7,500 new all-steel coal cars, 100 Mikado type freight engines, 62 switch engines and 45 Pacific-type locomotives, which relieved a number of freight engines theretofore used in passenger service.

An adequate supply is still further assured by reason of increased efficiency in car movement as a result of the purchase of 50 freight and 22 switch engines, which were put in service during March, April and May of this year, and another lot of 50 engines ordered for delivery this season. In addition the continuous service of several thousand wooden coal cars is assured during this season, due to steel underframe reinforcement and body reconstruction work done on them during the last year.

In view of the foregoing and the fact that the Illinois Central had a generous surplus of coal cars on its lines throughout the entire 1914-15 coal season, we approach the coming period of heaviest coal loading without any misgivings as to our ability promptly to meet car requirements for all the traffic which may be offered, even though it materially exceed the amount handled in any previous season.

CHICAGO & EASTERN ILLINOIS R.R.

By William J. Jackson, Receiver

In view of the large anticipated crop movement and the stimulation of general business conditions, it is our opinion there will quite likely be a coal-car shortage. Added to the general improvement in business is the prospective shutdown of the mines next April on account of the coal-miners' wage agreement expiring at that time. This should stimulate business during the winter months, when large consumers will want to stock coal, and will have a further tendency to make a car shortage.

It is a satisfaction to be able to state that this road was never in a better physical condition to cope with the demands of a heavy coal traffic or the needs of the coal trade. Large expenditures have been made, and the roadway and equipment are in first-class condition to handle expeditiously a big tonnage. If the producers and consumers will cooperate with the railroad in handling the traffic by promptly loading and unloading the coal cars, the fast service which we are prepared to give should minimize any car shortage.

The Labor Situation

SYNOPSIS—The labor leaders in the Hocking Valley region of Ohio meet to discuss whether they will keep their plighted word, and adjourn deciding they will not. Most of the Hocking operators will remain idle till the April settlement. The Colorado Fuel and Iron Co. prepares to sign a contract with its men.

Thomas Butler, the man who ventured to criticize the mine officials of District No. 9 of the United Mine Workers of America and was suspended from membership, is endeavoring to have the injunction prohibiting his exclusion from the union made permanent. James J. Moran and James B. Reilly, who are the attorneys for District President James Matthews and other officials of the district, filed on Sept. 28 a denial of the charge that they conspired to keep the name of James Butler off the ballot for district president.

The case is quite important, as it will decide whether the officials or the men constitute the union. The miners have objected because Professor Scott Nearing has been excluded from the University of Pennsylvania for his socialistic utterances but the muzzling of Butler is like an exclusion of one of the paying students and not of a hired member of the faculty. It may always be permissible to hold the employers of a state, university or union to a strict accountability but we strike at the freedom of the people when we forbid the electorate to express its opinions. It is therefore hoped that Judge Brumm who is trying the Butler case will decide to free the union electorate from any trammels which may be put upon it by the officials.

Hocking Valley Miners Repudiate Agreement

The miners' convention in the Hocking Valley subdistrict in session at Athens, Athens County, Ohio, invited the Hocking Coal Operators' Association to meet with them and discuss the situation. But the convention which followed was entirely without result. The miners' state officials, President John Moore, and Secretary-Treasurer Savage told the assembled delegates and operators that the clause regarding working conditions was not a part of the wage contract and that the joint scale committee had not even considered such a clause at the time of the last joint convention when the Hocking scale was made.

The clause requiring equal conditions in the districts was not signed by the miners as it was not actually in the contract. There was a verbal understanding only. The contract proper was signed by the miners' representatives and when the operators were asked to affix their signatures they added the clause that expressed their understanding of the contract placing it below the signatures of the miners' representatives. To the whole document as amended the operators appended their signatures.

It is clear that the operators are not bound by their agreement because the miners have violated the clause subject to which the operators signed their assent. But the miners' leaders had previously agreed verbally not to violate the condition appended to the contract and by accepting it as it was written laid themselves still further open to compliance with its provisions. If the clause is not binding on the consciences of the miners, then the operators could never have been bound by their signatures. By endeavoring to escape the clause the miners convict themselves of double dealing.

Six Months of Idleness in Eastern Ohio Threatened

The operators producing 75 per cent. of the tonnage declare that they will not open their mines till the April, 1916, settlement is reached. Thus six months or more of idleness is likely to follow the decision of the miners. Meanwhile many changes may occur. Improved times may make the operators more ready to start work because operation may become temporarily profitable regardless of the conditions and the wage scale. Moreover, the burden of poverty may bear heavily on the miners. There are 8,000 of them idle, and the union has promised to help them as it did the eastern Ohio miners to whom \$1,500,000 was contributed.

President Moore asserted that internal differences among the coal operators and price cutting and not unfair conditions were the main factors which were destroying the coal business in Ohio. Among those declaring that their mines will be shut down are John H. Winder, manager of the Sunday Creek Coal Co. and G. C. Weitzell, president of the New Pitts-

burgh Coal Co. The latter declared that the mines would shut down at the close of navigation and remain idle till Apr. 1 of next year or until the miners made concessions similar to those granted operators in eastern Ohio.

The arbitration board in the eastern Ohio field consisting of C. J. Albasin, J. J. Roby and Thomas P. Wangler—the first two representing the miners and operators, respectively, and the last being the umpire—have been considering difficulties arising under the recent agreement. The miners and operators were not able to reach an understanding, and so the arbitration board was established.

The first matter considered was whether the miners at the Pursglove-Maher Coal Co.'s mine were subject to a fine of a dollar per day for going on strike. The union declares that the miners were not authorized in quitting work.

Under the agreement the miners are not permitted to strike for any other cause than nonpayment of wages. The conciliation and arbitration boards are supposed to look after their needs without the necessity for striking. The miners claim that the operators locked them out and that they were not responsible for the stoppage of work.

Strikes Which Are in No Way Discreditable to the Miners

On Oct. 1 the miners of the George M. Jones Coal Co., at Bellaire, Ohio, went on strike to enforce run-of-mine payments. But to their great credit they decided after a day's idleness and a meeting to give the company more time to install the necessary scales. The miners could hardly be blamed if they violated their agreement to bring to an end such an obvious breach of contract as the failure to place and use scales by which all the coal mined could be weighed.

The union has announced that it will stand by the men in such violations of the agreement and no just complaint can be made of its action. The Pulteney miners have twice extended the time allowed their employers for placing run-of-mine scales, but no scales have yet been installed. It is useless for the operators to condemn the union if they do not propose to do any better.

Rockefeller Delivers His Industrial Representation Plan

On Oct. 2, 30 miners' representatives met the officials of the Colorado Fuel and Iron Co. in the club room of the steel plant at Pueblo, Colo., John D. Rockefeller, Jr., being present. Mr. Rockefeller described in detail the industrial representation plan devised by him and W. L. Mackenzie King. He explained that he and the other holders of C. F. & I. Co. stock had not received a cent from their holdings for 14 years. He condemned those who urged the miners to do as little as they can and get as much as they can for what little they do.

Among the delegates were seven members of the United Mine Workers of America representing the miners of Fremont County who had at one time been on strike against the company. The details of the plan will appear in the issue of "Coal Age" of Oct. 16, and one feature of it is commented on editorially in this present number. Five out of the eleven directors of the Colorado Fuel and Iron Co.: John D. Rockefeller, Jr., J. F. Welborn, president; S. G. Pierson, vice-president; J. A. Writer, secretary, and Cass Harrington, general counsel, held a meeting on Oct. 4 and approved the new arrangement unanimously. The other directors are expected to sign the minutes so as to give final ratification for their side of the agreement.

The delegates submitted it to a referendum of the miners and the vote received up till Oct. 5 showed that the ayes were 11 times as numerous as the noes. The ballot showed on that date 1,192 votes in favor of the agreement and 100 votes opposed. The union, of course, condemns this arrangement in which it does not share but which it appears powerless to prevent.

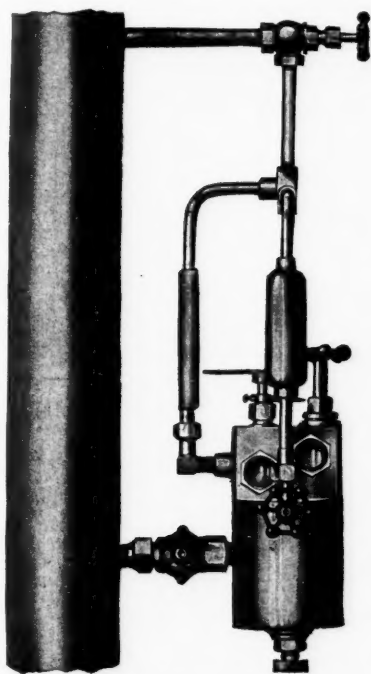

There is much talk that the cases against the 400 rioters who committed pillage, arson and murder will be withdrawn. Several citizens of Colorado, and some say John D. Rockefeller, Jr., have asked that this be done, but both the governor and Mr. Rockefeller deny that the latter has made any such request. John McLennan, the district president of the United Mine Workers' Union, has asked for this disposition of the cases and every indication seems to favor such a result.

The crimes charged are extremely flagrant and should be punished. The practice of sentencing men for trifling offenses and pardoning the most cruel and violent is getting only too frequent. We are afraid we might hurt the better and nobler instincts of a murderer by making him suffer his penalty. The minor criminal who is far more worthy of consideration serves the full extent of the law because by the unimportance of his case he fails to arouse the interest of the public.

New Apparatus and Equipment

New Grease Lubricator

A new and improved type of drop-feed grease lubricator, known as Class D, is now being offered to customers of the Ohio Grease Co., of Loudonville, Ohio. This is said to be the "last word" in lubricator construction. It is extremely simple and contains many points of refinement, such as better feed reg-



THE NEW LUBRICATOR

ulation, smaller drops, more perfect atomization, insulated tubes, protected sight glasses, etc.

Reports show that this lubricator is giving even better service than those which this company has put out in the past. This new instrument, like its predecessors, is not sold, but is loaned and kept in repair free for the purpose of feeding Ohio cylinder grease.

The grease has recently been greatly improved through the discovery of better raw materials and new methods of compounding. The company reports that the combination of this new lubricator and better grease has resulted in success wherever they have been used.

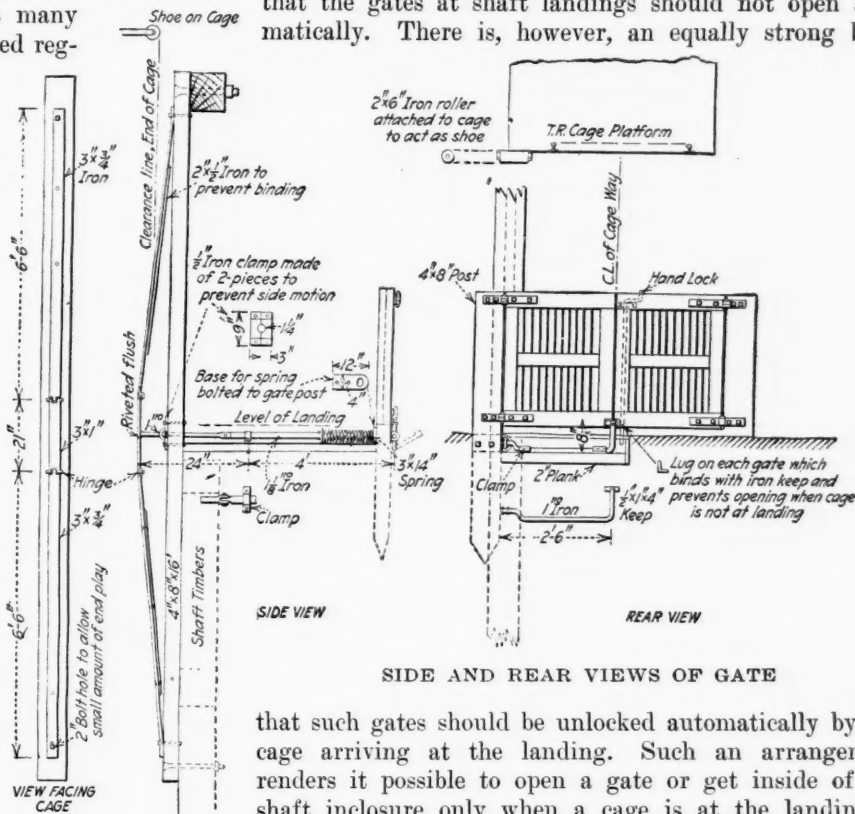
A New Safety Shaft Gate

A new type of safety gate for mine shafts has been invented and placed on the market by Lewis Hohnke, of Allport, Penn. This gate is shown in the accompanying illustration.

The gate is located at a landing where the cage comes to rest for the purpose of loading or unloading men and material. It does not open automatically and can be opened by hand only when the cage is in the proper position. It may, however, be closed by a spring or a

weighted cable. The arrangement here shown, which effectively prevents the gate from being opened when the cage is not in its proper position at the landing, prevents anyone from falling into the shaft.

There is a strong belief among many mining officials that the gates at shaft landings should not open automatically. There is, however, an equally strong belief



SIDE AND REAR VIEWS OF GATE

that such gates should be unlocked automatically by the cage arriving at the landing. Such an arrangement renders it possible to open a gate or get inside of the shaft inclosure only when a cage is at the landing.

The gate here described complies with art. viii, sec. 1, of the state mining law of Pennsylvania of 1913, and a gate of this type has been installed and is now in daily operation at a plant of the Morrisdale Coal Co., Morrisdale, Penn.

Portable Electric Room Hoist

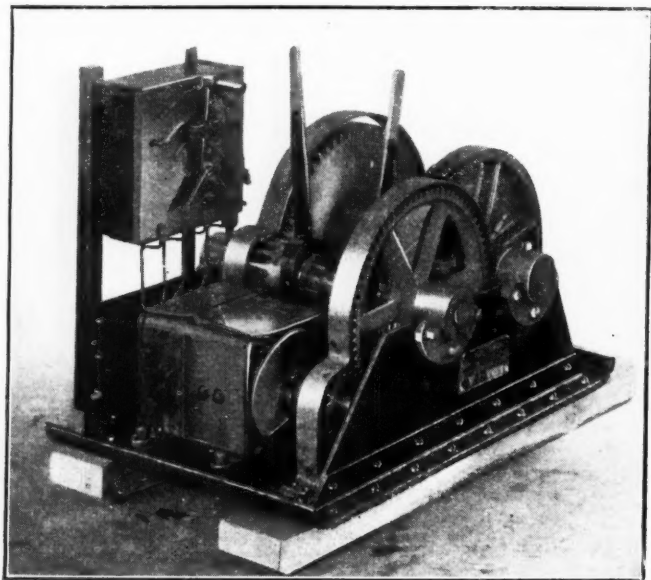
The room hoist shown in the accompanying illustration has been placed upon the market by the Mead-Morrison Manufacturing Co., of East Boston, Mass. This machine is perhaps of more general or all-around use than any other to be found in the mine. It is self-contained, compact and powerful, making it readily applicable to many of the hauling problems encountered underground.

The frame is made of structural and plate steel, thus lessening the possibility of breakage in this part of the mechanism. The entire machine is mounted on steel skids and may thus be easily moved from place to place. The operating mechanism is simple and may be handled by almost any one.

A jaw clutch permits of the drum being thrown out of gear, allowing the miner to carry the rope back in

the entry to his car, then return to the hoist and pull his load out. The gear ratio is such that a maximum of power is transmitted to the drum, thus permitting heavy loads to be handled.

This hoist has been kept small and compact so that it could be used in places not accessible to mules. It is



THE NEW ROOM HOIST

powerful, however, and may be used in large mines, not only at the mouth of entries to collect the cars to that point in place of a gathering locomotive, but also in moving cars under and around the tippie, and for other general haulage purposes about the mine.

This machine is commonly built in two sizes, either of which may be equipped with alternating- or direct-current motors. The sizes are 2-hp. (capacity on single-line 600 lb. at a rope speed of 100 ft. per min.) and 4-hp. (capacity 1,000-lb. pull on a single line at a rope speed of 125 ft. per min.).

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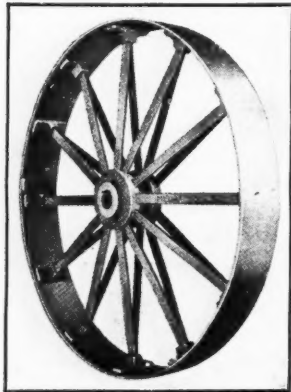
A New Heavy-Duty Pulley

A type of pulley designed for special and heavy service is being placed on the market by the Medart Patent Pulley Co., of St. Louis, Mo.

In the construction of this pulley the arms are made of flat, wrought steel. The hubs and rim lugs, of semi-steel, are cast onto the ends of the arms or spokes, which are so shaped as to afford a perfect and rigid connection.

The rim lugs are ground to a perfect circle, and a heavy steel-plate rim is attached by rivets. There is thus no shrinkage stress whatever upon any portion of the pulley.

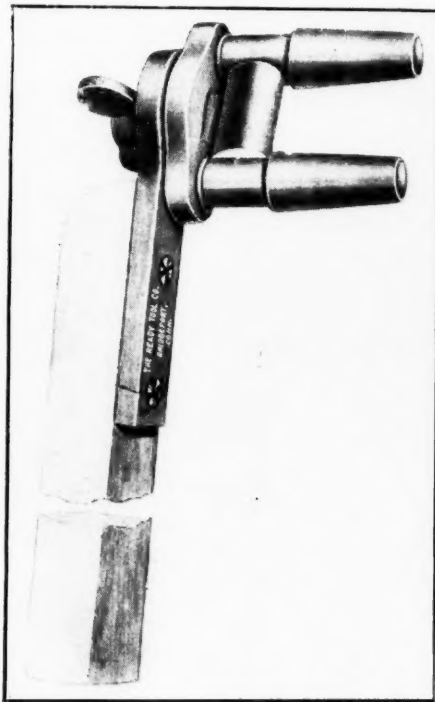
This type of pulley may be constructed with a single or double set of arms, also in either solid or split type in any diameter from 3 ft. to 15 ft., and with a face up to 50 in. in width. The arms, hub, lugs and thickness of rim may be made to suit conditions of severe service.



HEAVY DUTY PULLEY

Safety-First Belt Shifter

Everyone about the mines who has had experience with belts appreciates the annoyance, difficulty and danger in replacing the belts upon pulleys on line or counter shafting. To obviate these, the Ready Tool Co., of



THE SHIFTER ON POLE

Bridgeport, Conn., has placed on the market what it calls a "safety-first" belt shifter or belt stick.

In place of the hook or pin usually found on the end of a belt-shifting pole, this belt shifter carries a swiveling head on which are located three rollers—one with its axis parallel to the yoke upon which it is carried, while the two others are set at right angles to this yoke. The latter are tapered toward their outer ends.

Due to the taper of the two transverse rollers, there is no chance of the shifter being caught in the belt. After the belt is placed in the fork the tendency at all times is for it to slide onto the pulley and the fork to move away from the belt, thus overcoming the possibility of accidents.

This simple device not only saves time but furnishes a safe means of shifting belts and throwing them on or off a pulley while the latter is in motion.

✽

Mine-Refuse Disposal Dump

A type of dump designed especially to handle a maximum amount of mine refuse with the minimum amount of labor, to avoid cribbing and trestling, and to enable a pile of any desired shape to be formed, has been recently placed upon the market by the Dempsey-Degener Co., of Pittsburgh, Penn., and is known as the Saxon movable slate dump.

This dump consists essentially of a movable cantilever tippie, which overhangs the dump proper and deposits the material sufficiently far ahead to build its own roadbed. It is fitted with an electric rope hoist having a capacity of approximately 2,000 ft. of wire rope. This hauls the loaded cars from any convenient



FIG. 1. FRONT OF REFUSE PILE



FIG. 2. SIDE VIEW OF PILE AND DUMP

point, dumps them and returns them to the empty track or place of loading.

It is possible for two men to dump slate at the rate of from 20 to 40 cars per hour. If, however, the output is small and it is only desirable to employ one man, he can handle from 6 to 10 cars per hour. In other words, the machine hauls and dumps the cars, and by its use one or two men should be able easily to handle all the slate from an ordinary mine.

These dumps may be employed on a steep incline, thus largely increasing the capacity of a given piece of property for the storage of refuse. It is possible to handle on this machine either the ordinary mine cars themselves or to use monitor cars, into which the contents of the mine cars are deposited, the monitors being hauled up the incline and emptied in a manner exactly similar to that employed for the mine cars.

By the use of this machine it is practically never necessary to employ more than two men for handling the entire output of refuse from a mine. In case the quantity of rock to be handled is small and the length of

haul short, one man can easily do this work. Two operators can move the dump forward when this becomes necessary, level the roadway and build in tracks in about an hour and a half. On account of the long overhang of the machine, it is necessary to do this work of moving the machine forward to a new position only at long intervals.

The control of the machine is located at the proper place—namely, the dumping point—enabling the operator to attend to any difficulties which may arise here, such as material choking in the cars, etc. This also avoids the danger of running the car off the pile as sometimes happens when the hoisting machinery is distant from the dumping point and a code of signals is depended upon.

Many of these machines are now in successful operation, the number of cars being handled per day ranging from 120 to 265, while the weight of the loaded car ranges from 6,000 to 13,000 lb. The motor power in these installations varies from 25 to 66 hp., and the grade of the dump from 10 to 33 per cent.



FIG. 3. CAR DUMPING



FIG. 4. SHOWING OVERHANG OF DUMP

Editorials

An Impending Shortage in the Middle West

One of the best-informed wholesalers in Chicago states that a close analysis of the market situation at this time shows that the retail dealers generally throughout the Western States have not received anywhere near their usual quota of coal and that shipments so far have been far below normal. This shortage will have to be made up within the next few months in order to meet the consumers' demands.

A 20-per cent. increase over the current demand will create a shortage in nearly all fields. In many cases foreign laborers have left the coal fields for their native countries, while the transportation interests have not been in a financial position to anticipate any revival of trade, and this will make the car question a serious one later. These elements are going to be the controlling factors in the coal markets during the next several months, and prices are certain to show sharp rises. The retail dealer who is prepared for a shortage will undoubtedly reap advantages from these unusual conditions.

✽

Efficiency Tests as Sports

Our sports have rarely had any relation to our efficient performance of daily occupations. In fact, some will say they should not be so related and that the very thought of wedding sport with utility should perish. But after all, the evil of the association depends upon the point of view. It is dangerous to make our sports heavy with drudgery—very true!—but perhaps it is well to lighten our daily labors with the elements of sport.

If work is bending daily to an undesirable task, then 8 hr. is too long and 6 days too many in which to work, and long vacations are needed. If we are going to be wage slaves, the shorter our servitude the better; but if the day's work is for humanity or for the love of doing—for the keen joy of molding a result—then is labor pleasure and the day no longer than it is happy.

Wearisome work it is trudging along the country road, but joyous is "hiking," because hiking is a sport, while trudging is a duty. They can have discipline who will; for us the joy of doing is better.

They say that the people of these United States talk shop far more than do Europeans. They do, as anyone can verify if he will, but it is because the love of their work puts wings on their leaden feet and makes all their labors pleasures. And so shop comes naturally, as may also come efficiency. So long as efficiency—the art of securing a result without any unnecessary labor—replaces an effort of the body only by imposing a burden on the will, it will never be a success.

But success will come if we make efficient action into a sport, a thing of joy to carry into our holidays. There is no lack of examples in the past—the archer competing at the target, the soldier at the rifle butts, the black-

smith in a shoeing contest, the Australian and Wyoming experts in a sheep-shearing competition, the Western cow-puncher broncho-busting at a fair, and the confectioner engaging in a pie-baking contest.

Sports and efficiency are closely akin and not opposing ideas, as some believe. For it was from the racetrack that the efficiency experts took the stop-watch and from the recreation field the pedometer.

In what department of activity has the art of successful action been more exploited than in sports? Nowhere has the time of action been more closely recorded. Here the first photographs were taken to discover the mechanism of fast motion—to be more explicit to discover just how a horse maneuvered his feet in a trot.

Here also we find a dozen men at work with a bleacherful of critics, friendly and adverse, discussing, criticizing, denouncing their every motion. No men were ever more closely watched at their work. So also the manner of hitting in baseball has been analyzed, and the various methods of delivery. Books have been written on it and the pages of newspapers have been filled with it, and the mechanics of the curved and the spit balls has been learnedly discussed.

But of the manliest sport of all—the best because the most fruitful, the worthiest because the most universal—for this, till recently there has been little of either stop watches or technique.

We blunder on to the best ways and weights in shoveling, and each for ourselves we learn how to perform the motions connected with rope splicing or carpentry. Perhaps after awhile we will put into the common round some of that keen analysis and that readiness to submit to inquiry which we already have introduced into exercises which profit little or nothing.

First-aid contests are efficiency sports, and so was the shoveling competition at the recent field day of the Colorado Fuel and Iron Co. In a social outing of the Lehigh Valley Coal Co. there were contests between miners in erecting a set of 8-in. timber, in splicing ropes and belting and in guessing the percentage of carbon in a sample of coal. Some day we will all be subjected to such tests of skill.

The editors will be writing their illuminating discourses in a one-man event with a time limit on completion, a line limit on length and a subject limit on discussion. Then even the work they have to do will be a joyance unquestionable.

By the way, the results obtained at the Lehigh Valley meet are worthy of record and the winners deserving of commemoration. August Van Blargen and Edward Dunne erected a timber set in 7 min. 34 sec. Al. Openhaus and Edward Kessler won the belt-splicing competition. An 18-ft. splice was put in a wire rope by Henry Thomas, Tim Davis, Joseph Michaels and Esther Evans in 11 min. 5 sec. John Lloyd, R. A. Marshall and Harry McClellan tied in the estimation of carbon, and Thomas McLoughlin gave an exhibition of hemp-rope repairing.

Work is not labor till sorrow goes with it, and when our minds are bent to work and our bodies inured to it, we shall find that no work is labor, so long as we are well, if only we restrict our working hours within lengths that are healthful. And pleasure in our work will always be far more effective than discipline.

§

New York Coal Specifications

Next week's *Coal Age* will contain an important discussion of the New York coal specifications by some of the leading members of the New York coal trade. The new specifications have come in for some more or less severe criticism, and since more coal will be handled on these than probably on any other like proposals in this country, the matter of formulating uniformly fair and practical specifications in this case is a matter of more than purely local interest. Moreover the new requirements are likely to be established as a precedent.

§

Prophylactic Treatment for Contagious Misbeliefs?

The freedom of the press in covers or without covers—in books or in newspapers—is a sacred order of things. It would not be well to restrain anyone from plain utterance of what he believes; but without pretending that the matter has been given the due thought such a pronouncement merits, might it not be permissible to suggest that all books, especially books of science, be submitted to some scrutinizing eye before publication, so that the would-be writer might be protected from error by his due admonishment as to what constitutes recognized truth; might also be in part defended from those savage individuals known as book reviewers who delight in straightening out erratic writers?

Surely by some such provision a lot of misapprehension might be saved from going abroad; for most of the inaccuracies which parade in open day would never have dared to fare forth in the light if some recognized authority had labeled them myths and fallacies before the public saw them and before the author committed himself irrevocably to them. Do not think for a moment that it is suggested that books be placed on an *index expurgatorius* or that no book be published till some frowny-headed professor has written *nihil obstat* on the covers. The idea is rather that every book should be subjected to inspection and be reviewed before publication, so that the writer might be saved from mistakes.

This matter has not been duly placed before the associated book reviewers of America. It can easily be foreseen that they would condemn it unless they saw a chance to obtain a place on the prenatal book censorship. For when books are all good, the work of the reviewer is gone. Like the lawyer and the doctor who thrive on the crooked deal and the diseased body respectively, the reviewer does his best work where the volume to be described most sadly fails. But this selfish creature must not be allowed to hinder a worthy movement.

There is a class of books already which make deadly reviewing. They are issued by large publishing houses, and these corporations will not publish a book unless the author is considered competent. Moreover, the editor of the establishment exercises care, and the more obvious errors cannot find way into print. In this way the

reader is protected and the reviewer disarmed. Now if only every individual with a burning desire to write had a faithful friend like the editor of a publishing house or his assistant to lead him gently from the pitfalls toward which his bleary eyesight leads him, how much better it would be for reader and author and how barren it would be for the reviewer!

§

Proportional Wage Increases

The agreement between the miners and the Colorado Fuel and Iron Co. about to be signed contains many excellent clauses. Among the best items is that part of the last clause which says, "If prior to Jan. 1, 1918, a general increase shall be granted in competitive districts in which the company does not conduct operations, a proportional increase shall be made" [in the schedule of wages].

This seeks admirably to meet and satisfy a difficulty before it arises, and its inclusion among the provisions is an element of real statesmanship which is only too infrequent in labor agreements. However, it would have been better had it been differently worded, and confidence may be expressed that the document will be later rectified.

Equal proportional increases are only fair between two or more districts when the wages in both or all are equal. The difficulty is not strongly marked between Colorado and adjacent states because wages are more nearly equal than among some other states and parts of states elsewhere competing, but in any event rises should not be by percentages but by cents per ton or hour.

Only when this becomes customary will the balance of power between districts be maintained. Otherwise the regions paying the larger wage will be faced by a progressive discrimination. If one district pays twice as much for labor as another, after an increase of 10 per cent. which makes, say, a difference of 10c. per ton to the region giving the larger wage, the district paying the lower rate gains an advantage of 5c. and can probably cut the more generous region out of part of its trade.

This is not just, and it really is not necessary. Let the operators this coming year make a specific raise and not an *ad valorem* increase in the rate for each form of mining. Let this be the same everywhere whether in West Virginia, Pennsylvania, Colorado or Montana. It is bad enough to face unequal rates; it is worse yet when an inequality once granted is made larger year by year. This latter condition seems now to be universally conceded, if not in principle at least in general practice.

The continued increased cost of living is going to make it necessary and just to increase wages frequently. We may easily see wages doubled in the next quarter century and the working man not a bit better off. But the change will tend to react against the states now paying the higher rates if by any means they could be made to stand it without an early bankruptcy. Suppose a rate of 26c. per ton in one state and one of 47c. per ton in another. These are doubled by inevitable economic action to 52c. per ton and 94c. The differential is now not 21c., but 42c., and a most inequitable condition has arisen.

Strange it is that this condition has not been generally understood. If it had been, the states paying the larger wage would have demanded specific raises and insisted that similar specific increases be placed on the labor bills of other states.

Sociological Department

First-Aid Meet of Susquehanna and Lytle Coal Companies

SYNOPSIS—The meet held by the Susquehanna and Lytle coal companies is marked by the warmth of its social feeling, by the assistance it gives to safety propaganda and by the originality and excellence of its first-aid work.

The first-aid meet of the Susquehanna and Lytle coal companies has an individuality of its own. It has the character of a family gathering, though only a few ladies are present. By some this social spirit is explained sufficiently by the fact that the employees of the Susquehanna Coal Co. have for the most part been with that company for a number of years, but probably this good-

low these otherwise excellent executives do not appear to have just that particular kind of efficiency in view.

The Susquehanna and Lytle coal companies' meet was held at Edgewood Park, near Shamokin, Sept. 25, and special trains were run from various points to gather up the contestants scattered about the anthracite region. Despite the fact that the men come from widely remote sections of the anthracite field, the meet nevertheless resembled a reunion.

One of the interesting features was the number of boys' teams—breaker boys from No. 5 Nanticoke, No. 7 Nanticoke, No. 6 Glen Lyon, Hickory Ridge colliery, Shamokin; Pennsylvania colliery, Mt. Carmel; Lykens, Williamstown and Minersville. Thus there were eight teams in all. The boys took part in the same events as the men except in the full-team event, and their mark-

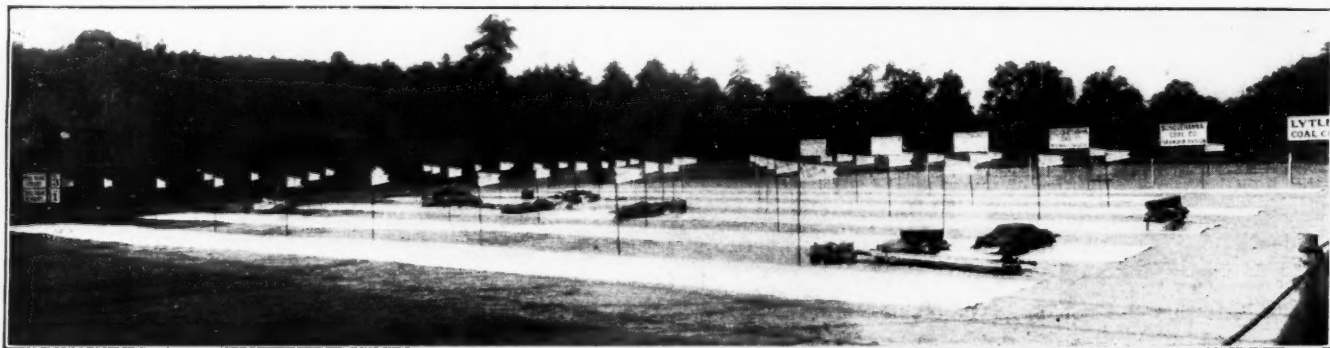


FIG. 1. FIELD AT SUSQUEHANNA MEET BEFORE 52 TEAMS AND THEIR 329 CONTESTANTS TOOK THEIR PLACES

feeling may be better explained by saying it arises out of the same spirit which has kept so many men from transferring their allegiance from one company to another for so many years.

One of the older employees who dug coal at the breast is Morris Williams, the president, and there is a large number of other men older by far than he who never received a pay envelope from any other company. However, the first-aid men are mostly young, and therefore the spirit animating the contestants must come less from long association than from a sentiment that the Susquehanna Coal Co. is directed by officials who have the interests of the men at heart.

EFFICIENCY WHICH DOES NOT EFFECT HAPPINESS IS MISNAMED

And the estimate of the miners is not wrong, for no one could have a keener interest in their welfare than Morris Williams, R. A. Quin, General Daugherty and Charlie Gloman. And what is more, the officials do not fail to exhibit their genial comradeship, which is as important as to feel it. There are executives aplenty with a kindly disposition and a forbidding air who seem to care for nothing but efficiency. After all, efficiency is of little value unless it effects our happiness, and some-

ing was uniformly high. They received the greater part of the applause, and well they deserved it as their work was most creditable.

SOME OF THE SAFETY MOTTOES EXHIBITED

The Susquehanna and Lytle coal companies had this year, as last, an exhibit of safety methods. Many of the legends on the display cards exhibited were extremely valuable, and it may be well to repeat them here:

The best safety device is a careful man.

It is better to be always careful than always a cripple.

Lodge men should boost for safety. Every lodge man is pledged to protect his fellow lodge man and to look after his wife and children if he is killed. Isn't it a more sane and fraternal act to prevent a brother from being injured than to buy flowers for his funeral and give charity to his family after he is gone? Think this over and join the safety campaign.

You need two eyes. It is a common sight to see a man take a match and a soiled handkerchief and dig a particle of steel out of the eye of another man. Think of exposing one of the most delicate and valuable organs of the body to the microbes which infest the handkerchief. There is always danger of infecting the eye, and blindness may result. Your eyes are the most valuable asset you have. Treat them decently.

Beside these were several blue-printed line drawings showing trucks for use in shaft sinking, a parallel-throw switch for mine tracks and a new method of timbering



FIG. 2. STRETCHERS FOR PITCHING BREASTS; CHAIRS AND COTS FOR UNDERGROUND HOSPITALS



FIG. 3. TREATMENT FOR DISLOCATED HIP, COMPOUND FRACTURE OF LEG AND LACERATED FOOT



FIG. 4. AN X-BANDAGING FOR PELVIC INJURY DEMONSTRATED BY RICHARDS OUTSIDE TEAM

steep workings which is known as a "man catcher." By means of planks set clear across and entirely over the manway at each "heading," or crosseut, a man when falling down from the breast is prevented from dropping or sliding to the bottom. By this means his life is probably saved. The men can pass around these man catchers when they climb into their places. This system is used with the full battery, the miner standing on the coal when drilling his chamber breast.

Several photographs were also shown exhibiting the changes in methods by which safety is being secured: Mules equipped with Wico lamps, shot firing with a bat-

tery, locking device for cage fans or keeps, safety doors over a shaft which is being sunk and many other like devices. There were also several iron cots made from screen cloth and used in the underground emergency hospitals and stretchers devised for handling men in heavily pitching seams. These were provided with a hook at the upper end and straps by which the injured man could be firmly secured in place.

Especially interesting were the views of the gardens of the workmen. The movement has not been encouraged by the Susquehanna by the award of prizes. The self-esteem of the Susquehanna men has always been



FIG. 5. SAM THOMAS OF PENNSYLVANIA INSIDE TEAM DEMONSTRATING THE SLIT BANDAGE



FIG. 6. DRESSING OF FRACTURED FOREARM WITH SLIT BANDAGE SHOWN IN FIG. 5



FIG. 7. ANOTHER TEAM'S TREATMENT OF SAME PROBLEM AS ILLUSTRATED IN FIG. 3

enough to carry the movement along. The company engages a most capable photographer to take large pictures of the gardens, and these photographs are given to the tenant of the lot and he keeps them in remembrance of his success long after a \$10 or \$5 bill, had he received it, would have been spent and forgotten.

PROBLEMS IN THE FIRST-AID CONTEST

The morning events were as follows:

One-Man Event—After a premature blast, a man is found with both eyes filled with dirt and a wound on the chin. Lead to a place of safety and dress injuries. Time, 5 min.

Two-Man Event—Simple fracture of the fifth and sixth ribs, right side; laceration of all the fingers of the left hand. Use roller bandages for the fingers only. Time, 12 min.



FIG. 8. GLEN LYON BREAKER BOYS' TEAM

Three-Man Event—Compound fracture of the middle third of left arm, simple fracture of same forearm and compound fracture of the middle third of right thigh. Time, 15 min.

Special One-Man Event—Best original adaptation of one or two triangular bandages for any purpose whatsoever.

The special event introduced many new dressings. William Penn inside team, for instance, exhibited a dressing for a fracture of the forearm using only one triangular bandage. The triangle was slashed on each side by seven cuts parallel with its base. These were extended till they nearly met along the median line of the triangle. The slashes, however, left an undivided mid-rib to the bandage, as shown in the illustration. This was about 2 in. wide. The seven ends of one edge of the triangle passed around the splints, and being tied to the seven ends opposing them, secured the broken arm of the injured man. The work was rapid and neat and occasioned much favorable comment.

FULL-TEAM EVENTS ARE HELD IN AFTERNOON

After a splendid lunch served under the trees in the park the full-team event was contested. This was as follows:

Men's Full-Team Event—Compound fracture of the left leg; dislocation of the right hip, laceration of the sole of the right foot, bleeding in spurts. Time 20 min.

Boys' Full-Team Event—Fracture of the pelvis; with lacerated wounds of the side of the head, bleeding in spurts. Time 12 min.

Two illustrations, Figs. 3 and 7, are shown of the first-mentioned event, which was performed concurrently

with the second. The fractured leg will be noticed carefully "pillowed" on a blanket and lying just in position in which it was found. The slotted boards lying on the stretcher will also be noted in one of the illustrations. Bandages are passed through the slots and they are then firmly secured around the handles and to the cleats at the side. As a result the patient is most securely attached to the stretcher, and the men could hardly be more effectually prevented from sliding were they slung from the stretchers exhibited by the company and reproduced on the accompanying illustration. The stretcher bearers—boys and men—"looped the loop" with their "victims" without loosening the bandages.

The Richards outside team from Mt. Carmel, Penn., had hoped to get the event which was apportioned to the boys, for they felt they had an X-bandaging for the pelvic injury they would like the *Coal Age*

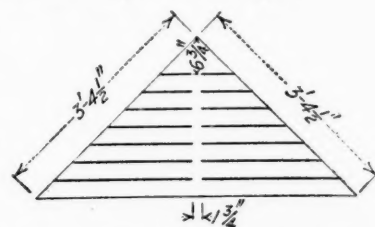


FIG. 9. SINGLE TRIANGULAR BANDAGE SLIT FOR USE IN BANDAGING FOREARM

readers to see. So when all the events were over, Dr. J. M. Maurer consented to their dressing this fracture, with the result illustrated. The work was certainly admirable in every way—as good and as professionally sound as it looks in the illustration. All knots which could press on the body and injure by constant pressure were padded, and where the bandages crossed on the chest a heavy pad was placed to relieve that pressure. It was perhaps unfair to photograph the men in this event, because all the breaker boys' teams in the regular contest did the work so admirably.

Perhaps the principal improvement in the first-aid work was in the execution of it rather than in the final result—the "how" which is as important in every way as the "what." A man may be well bandaged, but how

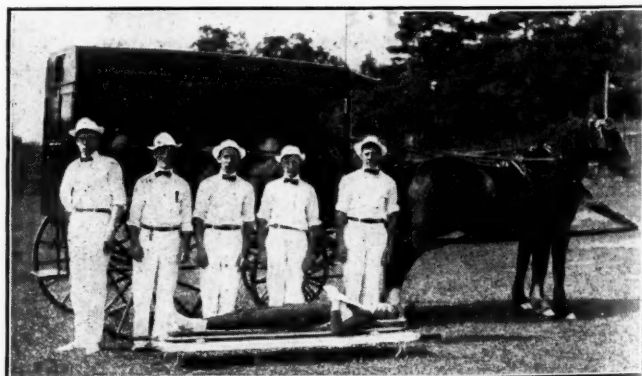


FIG. 10. LUKE FIDLER AMBULANCE

much good results if he has expired the while from shock which might have been avoided, or what if the fracture he had sustained had been made worse by careless action, or what if his spine had received an unnecessary twist? This part seems to be more emphasized now than ever, and the Susquehanna men and boys were just as careful in doing what the judges were not able to see as in performing the parts of the work to which the judges could give their attention when they made their rounds for examination.

They do not push bandages by hand under the prone victim, but use a paddle so that he is but little disturbed by the action. Where it is necessary to draw out the tongue they grasp it with an ordinary music clasp, built like a blueprint clamp but lighter. The pressure of this can be regulated at pleasure. Attached to this is a plummet. This holds the tongue out, and a little stick with a Y-shaped cut on top and bottom is thrust between the teeth to keep the mouth open and protect the protruding tongue.

After a parade came the speech-making, which was editorially treated last week, though nothing was said of the address of Henry A. Fuller, president judge of the Luzerne County Court at Wilkes-Barre. It was extremely witty and entertaining and pleased everyone. However, Judge Fuller undertook to contrast the war in Europe with the first-aid, mine-safety and compensation here to the disadvantage of Europe and our own private exaltation. Our present peace and noble ameliorative work are comforting reflections truly, but when we think that the three things Judge Fuller commented on arose abroad—in England and Germany—and that we ourselves have had wars which we are quite willing to believe showed a creditable spirit, such self-complacency seems at best hypocritical and quite out of keeping with our national spirit of fairness.

ROSTER OF THE VICTORS IN THE FIRST-AID CONTEST

The winners of the one-man event were the outside team of No. 1 Pennsylvania colliery first and that of No. 2 Hickory Ridge second. The inside team of Hickory Ridge took first place in the two-man event, and the

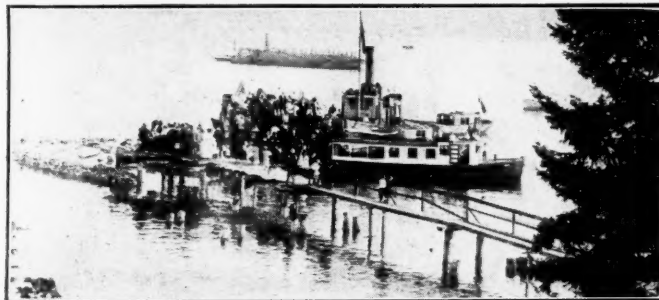
and 5, were William Matthews, captain; Ralph Kendter, Anthony Zigray, Andrew Sadusky, Felix Pfeifer, Joseph Graff and Albert Evans, subject. The breaker boys in the Pennsylvania colliery team which took first prize were Methuen Watkins, captain; Bernard Moleski, Edward Purcell, William Hovenstine, Gerald Wolfgang and Robert Penman, subject. The boys in the Hickory Ridge team were Patrick Feori, captain; Russel Tasker, August Little, Lewis Lish, Frank Alerio and Michael Spock, subject.

The judges were Dr. J. B. Rodgers, of Pottsville, Dr. D. H. Lake, of Kingston, and Dr. James W. Geist, of Wilkes-Barre. Dr. J. M. Maurer was the surgeon in charge of the field and as usual handled the work most successfully. Charles K. Gloman, secretary of the Susquehanna Coal Co., had charge of all the arrangements. The Elmore band supplied the music. John Dorsey, 11 years old, who is a member of that organization, played an admirable cornet solo and received liberal applause. The Susquehanna Coal Co. Glee Club was present with a piano and, led by Prof. K. I. Hopwood, gave several excellently rendered selections.

Western Fuel Co.'s Picnic

The Western Fuel Co., of Nanaimo, Vancouver Island, B. C., held a picnic at Departure Bay on Aug. 12. The weather was all that could be desired, and the surface and underground employees put forth every effort to make the excursionists happy. The committee in charge can justly feel proud, for over 2,000 persons attended, and every one voted the event a great success.

For this reason it is proposed to repeat it annually. Such days of social intercourse between employer and employee do



LOADING THE FERRY FOR ADVENTURE BAY



DR. McLENNAN ADDRESSING THE CROWD

outside team of William Penn colliery took second place. In the three-man event the outside team of Hickory Ridge was first, and Nanticoke No. 7, No. 1 North shaft, was second. In the special one-man event Nanticoke No. 5, No. 4 slope, was first, and Pennsylvania colliery outside team was second.

The full-team event went to Hickory Ridge outside team, with Pennsylvania colliery slopes Nos. 1 and 5 second. The breaker boys at Pennsylvania colliery took first place, and the Hickory Ridge breaker boys came second. Hickory Ridge had only three teams, but they took three first places and two second, and none of the three teams failed to receive honors.

The winners of the full-team event—Hickory Ridge, outside team—were P. H. Maginnis, captain; Charles Williams, John Ginter, Peter Aleria, Joe Stanshock, Henry Willard and Dave Little, subject. This team was awarded a silver cup and gold watch fobs. The members of the team of Pennsylvania colliery, slopes Nos. 1

much to make both approach their inevitable differences in a more friendly spirit. Not only the employees' committee, but the underground manager, the superintendent, and the general manager, T. R. Stockett, spared no effort to make the day pleasant.

The company's new ferry and several launches carried the passengers to the scene of merriment at Departure Bay, a distance of 4 mi. Ice cream, soft drinks, oranges and peanuts were provided in abundance. In the afternoon sports were held and valuable prizes awarded for each event.

Probably the most interesting item on the program was the first-aid contest, which was won by J. W. Jemson. The single event was: Run 100 yd.; treat a patient for fractured jaw, scalp wound and crushed hand; lift patient by fireman's lift and carry back to starting point.

Another interesting and keenly contested competition was the tug-of-war between the tophands and underground men. After several animated pulls the underground employees were awarded the prize. During the day a number of selections were rendered by the Piper's Band and members of the Silver Cornet Band. Speeches were also delivered by A. E. Planta, the mayor of Nanaimo; T. R. Stockett, general manager for the Western Fuel Co.; A. S. Hamilton, and Rev. Dr. McLennan. In the course of Manager Stockett's remarks he promised for his company to give dollar for dollar or gun for gun for every dollar or gun that the employees subscribed toward the Canadian Gun Fund.

Discussion by Readers

Efficient Mine Foremen

Letter No. 4—Mining is considered one of the most hazardous of occupations, and to reduce these hazards to the lowest possible limit, both the State and Federal Governments have assumed to exercise authority over the operation of mines, to the extent of enacting laws that, if enforced, will increase the safety of mine workers. These laws require the periodic inspection of mine workings and mine equipment by competent men commissioned by the state for that purpose.

The enactment of laws or the making of rules and regulations assumes the authorizing of persons whose duty it shall be to see that such laws, rules and regulations are strictly enforced, and the responsibility for the safety of workmen then properly rests on such authorized persons.

In considering where responsibility for the safe operation of a mine rightly rests we must first look to the mine superintendent. The law recognizes his authority by making him responsible for the employment of a practical and competent mine foreman who is to have full charge of the underground operations. Then, in order to fix a standard of competency for candidates for that position, the law requires that a mine foreman shall hold a certificate issued by the state to persons who fulfill the requirements of the law and pass an examination in respect to their knowledge and experience in the operation of mines. These are the general requirements relating to safety in mining.

The laws of most coal-producing states specify in detail the actual duties of the mine foreman and require that he shall devote his entire time to the operation of the mine in his charge. In most cases the mine foreman is made personally responsible by law for all matters pertaining to the safety of the men in his charge. The question has been raised as to whether the mine superintendent should not also hold a certificate of competency. While this would undoubtedly prove an advantage in the operation of the mine, it does not seem to me necessary to make it a requirement of the law wherever the act holds the mine foreman responsible for the safety of the operations underground. In my opinion it is not a good plan to make two men responsible for the same thing. The better plan is to make the mine superintendent responsible for employing a competent foreman, and then hold the foreman responsible for the safe operation of the mine, by specifying in detail what are his legal duties in the operation of the mine.

Let me now ask, What makes an efficient mine foreman, and how much should he know? There is scarcely a position in any industry where so many lives depend on one man's conscientious attention to duty, as well as on his practical and theoretical knowledge of the conditions relating to his work. Any man may do the best he knows how, but if he permits a danger to exist by reason of his ignorance of conditions, the result will prove fully as fatal as though he neglected a known duty.

The increased application of modern methods and equipment in mining and the greater development of the mine increase, in the same ratio, the required standard of proficiency, and it is necessary to consider these increased requirements in determining the competency of men capable of taking charge of the work. I would like to ask further, What is to be understood by the term "practical experience"? Many seem to think that this term relates only to the actual performance of work for a certain time in the mining of coal, without respect to the extent of the man's knowledge and his degree of efficiency as a workman. I know some old mine foremen who went to Pittsburgh to observe the experiments performed by the Bureau of Mines and learn that coal dust would explode without the presence of gas, before they would believe that to be possible.

To my mind the most practical man is the man who combines in his experience both years of work and of study. His years of work in mines will make him a judge of what he reads and studies. It is unfortunate that there is much in mining books that must be culled, the good from the bad. But reading and study keep a man posted and well informed on mining conditions and make him a more competent and efficient foreman, whose services will prove increasingly valuable to the company as time passes.

A mine foreman should consider that he must continue to study after he has secured his certificate. We must all admit that there is much to be learned that as yet we do not know. An efficient mine foreman will recognize that any amount of law or inspection cannot keep a mine safe. For this reason the foreman has a much greater responsibility resting on him than simply to keep the letter of the law. He knows that "a chain is only as strong as its weakest link," and one careless man in a mine may jeopardize the lives of every one underground. The foreman must be able to detect this weak link.

If a foreman finds a man who will not exercise the necessary care and precaution, he must discipline him. It is not enough to remind him of the law and expect his compliance therewith. When a foreman discovers a piece of bad top in a man's place, it is not enough to tell him to set a post under it, but he must adopt measures that will induce the man to carry out his orders promptly. This can only be done by discipline for failure. Strict mine discipline is the greatest factor in averting mine accidents.

Human fallibility and human carelessness make accidents possible at all times, and an efficient mine foreman will always consider these elements. It is more important to keep the mine free of dust and in such condition that a possible local explosion of gas will not be propagated throughout the mine, than to devote one's whole energies to the prevention of windy and blownout shots. It is better to keep sufficient air in circulation at the working face to prevent an accumulation of gas, than to

rely on men not passing over a danger board and igniting the gas with their open lamps. It is better to set the necessary post promptly, than to continue to load coal and hope to 'dodge' the loose piece of slate when it falls. At the same time, the windy or blowout shot, the danger board or signal and the need of watching the roof must not be neglected. In respect to safety, these are the chief essentials of an efficient foreman. Besides these, however, the efficient foreman must be able to get out the coal systematically and without waste of coal or danger to the workmen. I have confined my remarks to the safe operation of the mine.

GEORGE STOCKDALE.

Mt. Braddock, Penn.

Letter No. 5—In connection with the discussion of what makes an efficient mine foreman, I have been wondering whether it always pays for the foreman to speak the truth when questioned by the superintendent or manager in regard to conditions in the mine or occurrences that take place in its daily operation.

I recall one little incident that convinces me that it always pays a mine foreman to speak the exact truth and explain matters as they are or as they occur in the mine. The case to which I refer was one in which there had been heavy rains and surface water had found its way into the mine, so that it was necessary to discontinue work in certain places. As a natural result the general manager became very anxious to know the exact condition and, going into the mine, he put up a mark showing the water level, and gave orders that this should be measured night and morning.

It was my duty to take the measurement every night, and on going into the office one night after having measured the water, I found the manager and foreman in the office. The first question the manager asked was, "How much has the water gone down tonight?" I replied, "Two inches." The manager at once jumped on me, claiming that I had never measured the water, as the foreman had just told him that it had gone down 6 in. below the mark.

Naturally, I did not want to get the boss into trouble, but felt sure that he had made this statement as a guess at what he thought the water ought to have been lowered. I did not believe that he could have measured the water himself. Realizing that he had more to lose than myself, I stated: "Perhaps I have made a mistake in the measurement." As might be expected, such a reply did not give me much standing in the eyes of the manager, but my own conscience was free. The incident impressed me with the thought that if I ever became a mine foreman I would speak the truth. I believe that a mine foreman should always be able to give an intelligent answer in regard to conditions in any part of the mine—certainly this is true of every efficient foreman.

My observations during many years of coal-mining experience lead me to conclude that the trouble with most mine foremen is that they spend too much time in one place. Then if the superintendent or manager inquires about a place they have not reached in their rounds, they do not like to acknowledge that they have not seen the place, but make a shrewd guess and depend on having the assistant foreman put in a couple of men at once in such a place and see that it is put in the shape that he has described.

Instead of such a condition of affairs, I think there should be the best of understanding in the world between the mine foreman and his superintendent. When this is the case the foreman will not dread the superintendent's visit to the mine or strive to avoid his going into certain places while he is underground. A foreman should not hesitate to tell his superintendent of rails that had been covered by a fall, since it is necessary that such material be accounted for in the monthly report.

One thing a mine foreman should remember is that he is not infallible. Some of his schemes, no doubt, will not work out as he expected. Then what is the use of telling the superintendent, "Everything is working fine," when in reality the foreman is spending the company's money in a fruitless endeavor to work out his scheme and prove that he was not mistaken in his ideas? At such a time a dishonest mine foreman will frequently report the expense on other items. Since the superintendent does not have the opportunity to personally observe what is going on in the mine, it is important that he should have a mine foreman on whose word he can depend, and this sort of man, I believe, will make the most efficient foreman in the end.

THOMAS HOGARTH.

Burgettstown, Penn.

Letter No. 6—I have been much interested in the discussion of Efficient Mine Foremen, and would like to refer to a few points that appeal to me as going to make up an efficient foreman in coal mining. I will refer to these briefly, as follows:

It must be clear to the close observer that the mine foreman holds a most important position as an intermediary between two conflicting interests engaged in the mining of coal. Also, as a result of these conflicts, there is produced much suffering on the part of the general public. Standing as he does, the mine foreman is in a position to minimize the differences that are wont to arise between miners and their employers. By virtue of his position, the foreman if broadminded can see at a glance both sides of the question in controversy. His daily touch with both the miners and the operators informs him of any approaching disagreement or trouble, and if he is a man of judgment, he can generally bring both sides to a reasonable understanding of their individual rights and destroy that prejudice which so frequently exists in the minds of parties whose interests are in conflict.

The mine foreman must always hold sacred the rights of the miner to a sanitary condition of the mine workings in which he is employed and to the equipment of the mine with all necessary safety appliances designed to reduce the frequency of mine accidents of every nature. The mine worker has a right to fresh air and good drainage in the mine, so far as this is practicable. On the other hand, the operator has the right to expect the highest efficiency in the workmen employed and a maximum of economy and minimum of loss in the operation of the mine.

The general public also has unquestioned rights dependent on the continuous operation of the mine, the avoidance of strikes or lockouts, and a reasonable market value of the products mined. The intelligent mine foreman must be thoroughly informed in regard to and consider all the rights of the several parties involved.

I grant that it is often a difficult matter to bring parties in conflict to see each other's rights, but this is the task of the intelligent mine foreman and one that is of the highest importance. He should be possessed of a strong conviction that true rights of individuals never clash. His greatest efforts should be put forth to show both parties that their interests are not antagonistic but common.

In order to do the most efficient work in this connection, the mine foreman must not be one-sided. We speak of educated mine foremen, but if education means anything in this connection it means the ability to see the right of both sides of a controversy. The power to do this does not come from a college education; it is developed by keeping a well-balanced mind that can weigh the arguments on both sides of a question. An unprejudiced mind is developed by mixing freely with all classes of people and gaining their viewpoints as they present them. It is the result of reading and studying a question from an unprejudiced standpoint.

Different people regard the question of education from different standpoints, but in respect to the education of mining men, it must fit them for getting results in the business in which they are engaged. Doubtless, in many minds, the education of a mine foreman suggests his capability to operate the mine and avoid the loss of human life. In the minds of others, it suggests the ability to operate a mine in the most economical manner and reduce the cost of the production of coal. While I have not investigated the causes of mine catastrophes that have shocked the world, I strongly suspect that a large percentage of these accidents might have been prevented had the mine foremen in charge possessed the intelligence and experience that would have enabled them to form an accurate knowledge of the conditions existing in the mine and their effects.

I concede readily that the chief cause of mine accidents in the United States is to be found in the carelessness and ignorance of the miners themselves. In view of this fact, the responsibility of the mine foreman is greatly increased. A person fitted for this position must therefore be a good judge of human nature, possessed of tact and of a practical turn of mind. He must be thoroughly posted in the requirements of the state mining laws. He must be firm in maintaining the discipline of the mine. His technical education, whether derived from reading and studying or from attending schools, should include a thorough knowledge of the elements of mathematics and physics. Although the latter term may frighten many men, the laws of physics are simple natural laws that control the ventilation of the mines, the accumulation of gases, the rise and fall of the barometer, the initiation of a gas or dust explosion and many other things connected with the operation of the mines.

An efficient mine foreman must also possess a knowledge of the human frame and anatomy. He should know the exact position of the vital organs of the body and be acquainted with first-aid and rescue work, including the use of rescue appliances. He should have a sufficient knowledge of the origin and formation of coal and the structure of rocks to guide him intelligently in the extraction of the coal from the seam. His experience must be such as to acquaint him fully in regard to the preparation of shots in blasting coal and

rock, timbering airways and working places to make them safe, the fighting of mine fires and the operation of different haulage systems underground.

Although these are only a few of the things that a mine foreman should know, some will say that I expect too much of the man in this position, claiming that he often works for less wages than the miner at the face. In reply to this assertion, I will say that mine operators can well afford to pay good salaries for well-informed mine foremen. I recently heard a mine operator remark that his company would be glad to pay a foreman who was educated in the manner I have described a salary of \$2,000 per year. Operators know better than anyone else that intelligent labor pays, and they are willing to pay the price for such efficiency.

MINE FOREMAN.

Percy, Penn.

Egyptian State Ry. Specifications

Letter No. 2—The points made by F. R. Wadleigh in his letter, *Coal Age*, Oct. 2, p. 559, against the editorial of Aug. 28, p. 344, do not seem to be particularly well taken nor are they such as would ordinarily occur to a reader conversant with the coal trade.

The strike clause, for example, does not seem to be less rigid because it "allows an extension of time for deliveries." Had an American shipper entered into such a contract for the period Apr. 1, 1915, to Apr. 1, 1916, and were he confronted now with a strike or other unforeseen contingency, he would be required to make good his tonnage after Apr. 1, 1916, during a period when conceivably the cost of mining might well be much increased. Of course there could be no cancellation until after "an actual suspension of shipments," were there any equity in the case; but another clause points out that rejection is to constitute nondelivery.

That brings us to "the judgment of the buyer." The evidence of strike or other contingency has to be "satisfactory," and as Mr. Wadleigh says, Egypt is a long way off. Deliveries are to be "as per the following tables at the option of the administration"; and subject to 30 per cent. increases. Deductions, etc., are to be decided by the administration; and as already mentioned, rejection on the point of quality would constitute nondelivery. With American coals so generally friable and so much complained of in Europe for their proportion of slack, it is easy to see that "the inspector" with the weight of the British Government at his back could make the contractor very uncomfortable.

An absolute limit of 40 per cent. for volatile may certainly be considered rather stringent. There are several good locomotive coals that range around 40 per cent. volatile, almost as often above as below. There are any quantity of analyses from the Redstone seam that run 40.5 to 42 per cent. Under these stipulations such a coal would frequently be subjected to rejection. Because 40 per cent. will include everything from the Durham gas-coal field or from the fields shipping via Cardiff, it is simply a case where such contracts should be further modified if American competition is desired. One cannot consider 6-per cent. ash with no penalty up to 8 per cent. as other than an 8-per cent. requirement, and it would be universally so regarded; and it certainly is not an exacting requirement.

The strike clauses, etc., and the requirement as to volatile, however, seem to fully warrant the use of the words "rather drastic."

The remarks on time allowed for loading at Welsh ports were simply "free comment," pointing out the contrast between their handling of coal and ours. The "running hours" are of course figured from the time the vessels are "ready to load." But our steamers would have to get higher freights than they do in ordinary times if 200 hr. were customary loading dispatch for a 7,000-ton ship. Of course we are not discussing abnormal strike periods. The same remarks apply to the 700-ton per day guarantee for discharging, weather permitting, etc. If Americans were sending 8,000-ton ships regularly in usual times, the chances are they would insist on compensation if there were 15 days' detention: that is, they would unless they put their prices at a prohibitive level.

It is true, freight quotations to the Mediterranean are not as high now as when the editorial was written, early in July. But rates to Alexandria would certainly not be much less, were one to speculate on them to May or June, 1916. The one American shipper who positively obtained any share of this business, 60,000 tons, is understood to have bid \$14.16 delivered, and this on a coal that sells normally at \$2.40 to \$2.50, three-quarter screened, f.o.b. Philadelphia.

True, the bidder on the Panama R.R. contract puts up a bond of \$30,000, but the check with his bid is only for \$1,000 and the tonnage is 500,000 to 600,000. On 60,000 tons the Consolidation Coal Co., according to the stipulations, would be required to put up something like \$17,000 with its bid and increase it to \$85,000 when the tender is accepted. We do not understand how this can be considered other than "excessive."

We do not understand why there were "many" American shippers bidding. A London house put in a bid on American coal, but there was no award to any Americans except to the Consolidation, and that company has two steamers now just about ready to engage in this business—steamers contracted for before the war. The first of these cleared from Baltimore Sept. 30.

The whole point is that while the conditions on such pieces of business have already been modified somewhat in order to encourage American shippers, the modifications have not yet gone far enough. It was of course generally known that the Consolidation has had some business in Alexandria for a year or two back, but it was experimental by both parties. It was purely a result of those trial shipments that the conditions have been modified as much as they have.

G. G. W.

Boston, Mass.

Study Course in Coal Mining

BY J. T. BEARD

The Coal Age Pocket Book

LOGARITHMS

The treatment of logarithms here will be simple and practical and such as to enable their use to be clearly understood. Much time and labor are saved when multiplying and dividing, or when extracting the roots of numbers, or raising a number to a given power.

Definition—The logarithm of a number is the exponent of the power to which it is necessary to raise a fixed number called the "base" to produce the given number.

Systems of Logarithms—There are two systems of logarithms in use: 1. The Briggs or common system employs 10 as a base. 2. The Napierian or hyperbolic or natural system is derived from $2.71828+$ as a base. The common logarithms (log) are those generally used, while the natural logarithms (nat. log) are often employed in theoretical analyses.

The Napierian or natural logarithm of a number can always be found by multiplying the common logarithm of the number by 2.302585, which is expressed thus:

$$\text{Nat. log.} = 2.302585 \text{ com. log.}$$

In any system of logarithms, the logarithm of 1 is zero, and the logarithm of the base of the system is always 1.

The Logarithm—Every logarithm is composed of two distinct parts separated by a decimal point. The number preceding the decimal point, or the integer of the logarithm is called the "characteristic," while the decimal portion of the logarithm is the "mantissa." These two parts of a logarithm must be regarded separately. The mantissa is always positive, but the characteristic may be either positive or negative, according as the given number is greater or less than 1, in a system whose base is greater than 1.

The **characteristic** is always 1 less than the number of figures in the integral portion of the given number; or 1 greater than the number of ciphers following the decimal point when the given number is wholly decimal. In the former case the characteristic is positive; in the latter case it is negative. The following examples will make this clear:

log 325.00 = 2.51188	log 0.325 = -1.51188
log 32.50 = 1.51188	log 0.0325 = -2.51188
log 3.25 = 0.51188	log 0.00325 = -3.51188

The **mantissa**, as is readily observed from the above examples, is determined by the sensible figures of a number, without regard to the decimal point. Also, the mantissa of the logarithm of a number is unchanged when the number is multiplied or divided by 10, 100, 1,000, etc. For example, the mantissa of the logarithm of 3, which is 0.47712, is the same for 30, 300, 3,000 or for 0.3, 0.03, 0.003, etc.

A table of the common logarithms of numbers from 0 to 10,000 will be found in the appendix. In this table the mantissas only are given and, to avoid unnecessary repetition, the first two figures are not repeated, but bars are employed to mark the division. The numbers are given in the left-hand column, and the differences, which are used for the purpose of interpolation, are placed on the right.

The Coal Age Pocket Book

To Find the Logarithm of a Number—From the table of logarithms, find the mantissa corresponding to the given number, ignoring the decimal point. To do this, the first three figures on the left of the given number are found in the left-hand column of the table, and the fourth figure in the line at the top. The required mantissa is then taken from the line and column thus indicated.

But if the given number contains five or more figures, write the excess figures as a decimal and multiply by the difference found in the right-hand column of the table; point off and add the integral portion of this result to the mantissa already found. If desired this logarithm can be extended by annexing the decimal portion of the same result, but this is not commonly necessary.

Having found the mantissa, prefix a decimal point preceded by a characteristic one less than the number of integral figures in the given number. If there is but one integral figure the characteristic of the logarithm will be zero.

If the given number is a decimal, having no integral figures, the characteristic will be negative and numerically one greater than the number of ciphers that follow the decimal point.

Illustrations—The following examples will illustrate the method of finding the logarithms of numbers under different conditions and make clear the use of the table.

1. Suppose it is required to find the logarithm of the number 4.657. Opposite 465, in the column under 7, is found 811, and this annexed to 66 found at the left gives for the mantissa of this number the decimal 0.66811. The characteristic, in this case, is 3, since there are four integral figures in the given number. Hence, $\log 4.657 = 3.66811$.

2. To find the logarithm of 32.567, ignoring the decimal point, opposite 325, in the column under 6, is found the mantissa 0.51268; but there is still another figure 7 in the given number. Therefore, to complete the mantissa write this as a decimal 0.7 and multiply by the difference 14 found in the right-hand column; thus, $0.7 \times 14 = 9.8$, or say 10. Then $51,268 + 10 = 51,278$ and the complete mantissa is therefore 0.51278. In this case, the given number contains but two integral figures, which makes the characteristic 1; hence, $\log 32.567 = 1.51278$.

3. To find the logarithm of 0.509065, ignoring the decimal point, opposite 509, in the column under 0, is found the mantissa 0.70672. To complete this mantissa multiply the remaining figures of the given number, written as a decimal, by the difference 8 found at the right, and add the integral result to the mantissa already found.

Thus, $70,672 + 0.65 \times 8 = 70,672 + 5 = 70,677$. Now, since the given number is a decimal, the characteristic of its logarithm is negative; and its numerical value is 1, as there are no ciphers immediately following the decimal point. The complete logarithm is, therefore, $\log 0.509065 = -1.70677$, which should be written thus 1.70677, since the characteristic only is negative.

Inquiries of General Interest

Formulas for Weight of Air

I have been studying the pamphlet, "Practical Mine Ventilation," and see that the formula given for finding the weight of a cubic foot of air at a temperature t and a barometric pressure B uses the constant 1.3273, instead of the constant used in the old textbooks, 1.3253. I believe that it has been explained in *Coal Age* that this change of constant is due to adopting 460 as the absolute zero of the Fahrenheit scale, instead of 459 used in the old formula. I believe it was stated that these two formulas give practically the same results.

However, I have calculated the weight of 1 cu.ft. of air at a temperature of 60 deg. F. and a barometric pressure of 30 in., and find a little difference. My calculations are as follows:

$$\text{Old formula, } w = \frac{1.3253 \times 30}{459 + 60} = 0.076607 \text{ lb.}$$

$$\text{New formula, } w = \frac{1.3273 \times 30}{460 + 60} = 0.076575 \text{ lb.}$$

Kindly explain which of these formulas gives the nearer approximation to the correct weight of air.

W. T. JENKINS.

California, Penn.

It will be observed that the results obtained by the correspondent are practically identical to four decimal places. In order to answer the question of which of these results approaches more closely to the actual facts, we must go back to the determinations of the weight of air made by Regnault, which have been generally accepted as the base of scientific calculations. (See "Mine Gases and Explosions," Beard, pp. 75-78.)

The experiments of Regnault showed that 1,000 c.c. of air at a temperature of 0 deg. C. (32 deg. F.) and a barometric pressure of 760 mm. (29.925 in.) weighs 1.293187 grams. Reducing this standard weight of air to pounds per cubic foot, we find that 1 cu.ft. of dry air at a temperature 32 deg. F. and a barometric pressure of 29.925 in. weighs 0.080728 lb.

Now correcting this last result for temperature and pressure, the weight of 1 cu.ft. of dry air at 60 deg. F. and a barometric pressure of 30 in. is

$$w = 0.080728 \frac{460 + 32}{460 + 60} \times \frac{30}{29.925} = 0.076575 \text{ lb.}$$

This shows that the new formula gives the closer approximation to the truth, or the adopted standard of Regnault.

The formula used in steam-engineering practice gives the weight (w) of 1 cu.ft. of dry air at an absolute temperature (T) of the Fahrenheit scale and a pressure (p) in pounds per square inch as

$$w = \frac{p}{0.37 T}$$

Since the weight of 1 cu.in. of mercury at a standard

temperature of 32 deg. F. is 0.4911 lb., it is observed that the constant 0.37 exactly corresponds to the constant 1.3273; thus, $0.4911 \div 1.3273 = 0.37$.

✂

Weight and Pressure of Gas

Suppose we have a room containing 1,000 cu.ft. of pure marsh gas, having a specific gravity of 0.559. Assume, for the purpose of argument, that this gas is distributed over an area of 100 sq.ft. in the room. Since we have had quite an argument as to what pressure this body of gas would have on the mine roof above it, under the assumed conditions, I would like to ask you to explain what is the weight of this amount of gas and what amount of air weighing 0.0766 lb. per cu.ft., would the gas balance? Also, assuming there was a slip in the roof, forming what the miners call a "pot hole," would the pressure of the gas have a tendency to keep the rock from falling? Please show how to find the lifting power of this gas.

INQUIRER.

Enterprise, Iowa.

The question as to the pressure this volume of gas would exert to oppose the tendency of the roof rock to fall cannot be considered a practical question under the assumed conditions. Taking the weight of the gas as 0.0766 lb. per cu.ft., the entire weight of gas assumed is $1,000 \times 0.0766 = 76.6$ lb. The inquiry assumes that this gas is distributed over an area of 100 sq.ft. of room, which condition makes the vertical depth of the entire volume of gas $1,000 \div 100 = 10$ ft. Now, assuming a level seam, there is a lack of balance between this 10-ft. head of gas and a 10-ft. column of air. If the conditions were such, practically, that these opposing air columns could be held intact, the excess in weight of 10 cu.ft. of air over 10 cu.ft. of gas would represent a pressure of $10 \times 0.0766 (1 - 0.559) = \frac{1}{3}$ lb. per sq.ft. exerted against the roof.

However, such cannot be assumed as the practical condition, as the tendency of the gas accumulated in the room is to diffuse into the air with which it is in contact. Actually, the heavier air works under the gas and forces it to flow out of the room along the roof of the mine. There is therefore an inflow of air along the floor and an outflow of gas at the roof of this room. As a fact, under these conditions there is no pressure whatever exerted by the gas in opposition to the tendency of the roof to fall. The natural escape of the gas from the room, as described, prevents it from exerting any pressure against the roof.

In answer to the last question, it may be stated that the lifting power of any volume of gas, as estimated from its specific gravity referred to air as unity, is found by multiplying 1 minus the specific gravity of the gas by the weight of a cubic foot of air, and that product by the volume of the gas in question. The result gives the lifting power of the gas when confined in a body, as in a gas bag.

Examination Questions

Alabama Examination for Mine Foremen, July 26-29, 1915

(Selected Questions)

Ques.—If the ventilation of a mine is insufficient, how may it be increased without increasing the power?

Ans.—All airways should be thoroughly cleaned up and every obstruction to the free passage of air removed. Air courses should be straightened, the distance the air must travel shortened and the air current split, wherever it is practicable to make these changes. The splitting of the air current, however, is limited by the velocity of the current, which must always be sufficient to sweep away the gases that would otherwise accumulate at the roof or the face of the headings and in the void places in the mines. All breakthroughs and crosscuts should be enlarged to the full area of the airways, and no obstruction should be permitted in these crosscuts. If practicable, the main airways should be widened so as to reduce the velocity of the air current passing through them to a normal velocity, say not to exceed 12 or 15 ft. per sec., except it may be for short distances in places where the airway cannot be enlarged.

Ques.—When coal is shot off the solid, how should the holes be drilled and what kind of powder should be used?

Ans.—When shooting coal off the solid, the holes should be drilled to such a depth and at such an angle that the line of least resistance will be less than the length of the hole. Also, the line of least resistance should be perpendicular to the hole, at its extreme depth. Again, the hole should frequently be slightly inclined upward or downward, according as the coal shoots harder at the top or the bottom of the seam. Where the coal is seamy or includes soft layers that are easily blown out in blasting, it is important that the hole should be inclined across such measures and the charge located in the harder layers of the seam. In no case should the charge be located too close to the roof or the floor of the seam. Only a normal charge of permissible powder should be used, which must not exceed 1½ lb.

Ques.—Where coal is undercut by machines, is it possible to have a windy or blownout shot? If so, what would be the cause?

Ans.—Windy or blownout shots more often result from insufficient mining or shearing of the coal. When undercutting by machine, it is possible that too much reliance is placed on the fact that the coal is well mined, and for this reason the danger of a blownout or a windy shot is practically eliminated. The miner is also tempted to put in a deeper hole and to locate the shot somewhat beyond the depth of the mining. A hole should never be drilled beyond the depth to which the coal is mined, so that the charge will not be located in the solid formation. When blasting coal mined by machine, it must be remembered that a less weight of powder is required to break down the coal, since the rupture is greatly assisted by gravity. The charge may also be located somewhat higher in the

seam than would otherwise be done. If these precautions are not followed, a blownout or a windy shot may result even in machine mining. In such mining, the line of least resistance is measured by the distance between the hole and the mining, at their extreme depths. The weight of the charge must be proportioned to this distance, having due regard to the effect of gravity to break the coal.

Ques.—If two kinds of powder are used in the same hole, what is likely to be the result?

Ans.—The coarser powder will burn more slowly, and as a result a portion will be blown out of the hole while it is still burning, by reason of the quicker combustion and explosion of the finer-grained powder. The mixing of two grades of powder in the same hole is a dangerous practice and liable to produce a windy shot that will frequently result in a more or less local dust explosion, which may develop into a violent mine explosion under favorable conditions in the mine.

Ques.—When firing five shots in the face of a room, with one shot depending on another, what precautions should be taken to prevent a windy shot?

Ans.—The danger in this case is that one or more of the dependent shots may explode out of turn or before the explosion of the shot intended to relieve the one in question. In that event there is almost sure to result a blownout shot. Whenever two or more such shots are to be fired in a mine, each shot should be fired separately, in turn, in the order in which it was intended. In such case great care is needed to prevent the accidental explosion of succeeding shots. Fuse should not be used, and the squibs should not be inserted in any of the succeeding holes until they are reached in turn. The firing of two or more dependent shots in a working place is always attended with considerable risk to the miner or shotfirer, who must return through the smoke of the first shot in order to fire those remaining.

Ques.—How would you handle a failed shot to prevent an accident?

Ans.—It is never safe to attempt to pick out a shot that has failed to explode or has misfired. A great deal of care and judgment is required in handling such a shot. The safest plan is to drill another hole in a position to dislodge the missed shot. In doing this, however, the second hole should be drilled at a sufficient distance from the first to avoid the possibility of that charge being exploded by the drilling of the second hole. It will be well to observe extra precaution in this case to free the shot, by mining or shearing the coal in such a manner that a light charge only is required in the second hole. This is important, inasmuch as the first charge will probably be exploded when the second hole is fired. The two charges together would produce a heavy shot, similar in its effect to that of an overcharged hole. Also, special precaution should be taken to clean up the face before firing the second hole and to remove all accumulations of fine coal and dust that would be blown into the air by the force of the explosion of the two shots.

Coal and Coke News

Washington, D. C.

In filing a petition for the reopening of the Western rate case, the railroads operating west of Chicago have taken an expected step. It had been supposed that the action of the Interstate Commerce Commission in postponing the date when its order in the case would become effective to Dec. 31 meant that some new proceeding was probable, although there was no official announcement to that effect.

Now the case is sought to be reopened, and it remains to be seen what the Commission will say in reply to the roads. It is recalled that over a year ago the 5 per cent. case affecting the Eastern roads was thus reopened and, after rehearing, a new opinion granting some of the roads' demands was handed down.

In this case the argument for rehearing is supposed to be particularly strong, because of the fact that two forcible dissenting opinions were filed by members of the minority of the Commission.

Whatever is done will not affect the rates, including a large number of new coal rates, that were provided for in the original tariffs of the carriers, until at least the first of January next. That amount of delay in the final action is assured by the order of the Commission, already referred to wherein the effective date of the order in the case is put off to the end of the year. The new proceeding leaves the coal rates as they were before the petition was filed.

On the other hand, however, should the petition be granted and the case reopened, the time of the effective date of the order would probably be still further postponed, inasmuch as it would hardly be likely that the rehearing could be had and the present opinion be reviewed before the end of the year. In the event, moreover, that the Commission should hand down a new opinion, the coal interests could be but little more disadvantageously treated than they would be under the present opinion. As will be recalled, the present opinion holds that the advances in rates on bituminous coals except as to South Dakota points have been justified by the roads, the same being true of coke.

This means that, even if the Commission should reopen the case as suggested, and should further incline to greater concessions to the carriers, the only point at which coal interests could be injured would be in connection with the proposed South Dakota rates which might conceivably be upheld. Of course there would be the possibility that the coal interests might succeed in inducing the Commission, in case of such a reopening and revision, to disallow more of the increases in rates, but this does not now seem likely.

New Procedure in Exportation

From and after Jan. 1, 1916, a new procedure will be employed by the Treasury in connection with the exportation of merchandise. The new procedure will require as a prerequisite to the issuance of clearance papers a shipper's export declaration to be filled in by the shipper and filed with the Collector of Customs. The export declaration upon which will be stated the ordinary information regarding the nature, quantity, and value of the goods, the home of the shipper and the destination, etc., must be made under oath taken before a notary and will be retained at the Custom House as confidential. Where the shipper's export declaration has not been received clearance may be granted provided a bond of \$500 is given by the master of the vessel to cause the filing of the declaration within 15 days after the date of clearance.

PENNSYLVANIA

Anthracite

Yatesville—The Lehigh Valley R.R. Co.'s mountain cut-off tracks were out of service on Sept. 28, due to a cave-in over the workings of the Pennsylvania Coal Co. The track and ground settled about 3 ft. for a distance of 60 ft. Track walkers discovered the settlement in time to flag all trains. A large force of men were set to work filling in the cavity with ashes and stone.

Hazleton—Properties sought in Butler Valley by the Lehigh Valley Coal Co. to be the outlet of the big 5-mi. drainage tunnel that will tap the water in the Hazleton Basin and do away with pumps have been obtained, and contractors bidding

on the job have been notified that the work will be given out during October. It will take about two years to drive the tunnel.

Lansford—The present week has been a season of activity in the anthracite coal business, many of the mines in the upper Lehigh Valley having resumed full time with the coming of the change in the weather.

After having been imprisoned in the Foster Tunnel of the Lehigh Coal & Navigation Co. for six days nine miners were rescued practically unhurt. The men were entombed by a fall of rock and a rush of water following a blast. Two hundred men labored night and day in the rescue work. A cut was made through 300 ft. of solid rock and coal. After having been in the mine four days the men were given up for lost, as it was believed that the water must have reached them. On the sixth day the water was lowered sufficiently to allow one of the rescue corps to go into the opening on a raft. The men were found at the top of a chute. They had lived on the food which one of them had in his dinner pail, but this had all been consumed two days before they were rescued. After resting in the hospital for several days the men have practically recovered.

Scranton—Most of the mines in the anthracite region are now working on full time. All the collieries of the Delaware, Lackawanna & Western Co. are working full, and it is believed that full-time operations will continue for a considerable period. Orders have also been received to start full-time operations in all mines of the Scranton Coal Co., while similar instructions are being put into effect at the Delaware & Hudson mines.

Archbald—Four mine workers were badly burned in a powder explosion at the slope mine of the Archbald Coal Co. recently. These men were burned about the face and body when a spark from a mine lamp ignited a quantity of powder. One man was taken to the Mid Valley Hospital in a serious condition, while the others were removed to their homes.

Bituminous

Sample Run—The Clearfield Bituminous Coal Co., operating mines here, is making improvements. A new air shaft and fan system is being installed and the entire workings are being overhauled. The output of the company will be greatly increased as a result of the improvements.

Windber—Held prisoner for 15 hr. by a mining machine in the Gahagan mine, Thomas McCabe smoked and talked with his rescuers as they burned away the steel of the machine with an oxygen flame. McCabe was about to quit work when in some manner his leg was caught in the machine, and although the flesh was cut to the bone, he was securely held. In the hope of saving his leg, the coal company officials hurried to Johnstown for the necessary apparatus to cut away the steel, and skilled workmen finally released him. He was sent to the hospital, but physicians found that it was necessary to amputate the leg.

Connellsville—Scarcity of labor in the coke region is beginning to be felt by producers, but in the face of this condition some 300 ovens were recently added to the active list. The labor shortage is due to the fact that when the European war came on scores of coke workers were at their homes in Italy and Austria and have not returned. Production and shipment of coke continues at approximately 390,000 tons a week, with a material increase expected shortly.

Rillton—Mine safety car No. 6 of the Bureau of Mines will be at Rillton, Oct. 11, for the purpose of giving demonstrations in mine rescue and first-aid work. The car will remain here until Oct. 23, during which period lectures will be given relating to rescue work. On Oct. 25 the car will go to Jenner to remain until Nov. 20.

MARYLAND

Cumberland—The mines in this section are now working full time and some are employing more men. The Washington mine of the Potomac & George's Creek Coal Co. is increasing its force.

WEST VIRGINIA

Annabelle—A compressed air charging station for mining locomotives in the Annabelle mine was recently the scene of an accident which injured three men. This station evidently received too great a pressure of air, with the result that a blow-out occurred. The accident did not damage the mine beyond the immediate vicinity of the charging station, and the property damage will be small. The three workmen, however, comprising a locomotive crew, were all severely injured.

Charleston—Work will be resumed in full at the Briar Creek mines of the Olcott Coal Co. within a few days. It is believed that to fill the orders for coal that this firm has received it will be necessary to operate the mine six days per week. More than 1,500 men are employed by the Olcott company.

Shinnston—Indications point to an early development of a considerable area in the vicinity of Wyatt. It is believed that a railroad will come up Binghamon Creek within the next year or so. Most of the coal in that section has been sold for some time, and agents are now buying up the surface. The development of this territory will necessitate the construction of a railroad to the region.

TENNESSEE

Brieville—Mines in this section are beginning to work on longer time. The Cross Mountain mines are running 4 days a week and the Royal-Consolidated 4½ days. Heretofore they have been doing little better than two days a week. The miners in this section are looking for steady work to begin soon, and a party of 50 which went to Kentucky recently has returned.

KENTUCKY

Providence—The Providence Mining Co. has completed its new store and office building here and on Oct. 1 and 2 held a formal opening. This is a two-story vitrified-brick building, and with the other buildings occupied by the company gives it a solid block.

Louisa—Mines of the Eastern Kentucky Coal Co., at Torchlight, have shut down for an indefinite time. It is reported that the company will construct a firebrick plant to make use of the vein of fire clay which is known to exist on the property.

Logmont—The Crystal Coal Co., which has recently opened a new property, built new camps and added to its machinery equipment, is advertising for 100 loaders. The mine, located on the Stoney Fork Branch, 9 miles from Middlesboro, makes full time.

OHIO

Columbus—Preparations are being made by the officials of the Lorain Coal and Dock Co., to open another mine in the eastern Ohio district. The Lansing mine is now being put into shape for operation. This will make all four of its eastern Ohio mines in operation. They are the Lansing, Wheeling Creek, Crescent and Blaine. This company is now loading approximately 1,000 tons daily at the Logan County, W. Va., mine which is called Larado. It is expected to have the capacity increased to 2,000 tons daily by the first of the year. All of the present development is intended to be loaded over the one tippie, which is one of the largest in West Virginia.

Bellaire—It is stated that the Pittsburgh-Belmont Coal Co. will shortly put its No. 2 mine in operation. Repair men have been at work for some time and the mine is now ready for working. It has been idle for 18 months, but when running will give employment to several hundred men.

INDIANA

Clinton—The J. K. Dering mine No. 1 is on full schedule since receiving a contract to supply 1,000 tons of coal a day to the Grand Trunk R.R. The output of the mine is about 500 tons a day. It is electrified and employs about 250 men.

Bicknell—The first annual state-wide first-aid meet for miners will be held here Oct. 30 under the auspices of the local unions of U. M. W. of A., coal operators of Knox County, merchants of Bicknell, the Federal Bureau of Mines and the American Mine Safety Association. It will be the first annual meet held in Indiana. Prizes will be awarded for the various events. It is expected competition will be keen.

Vincennes—Efforts are being made to have the Vandalia R.R. Co. operate a miners' train from Bicknell to this city, making the trip out in the morning and returning in the evening in the interest of the miner's accommodation. If the train were to be provided to run to the American mine, the largest in the city, it is stated that 150 miners now living

in Bicknell would make their homes here. The railroad company has offered to put the train in service on condition that the Vincennes merchants will guarantee \$1,000 monthly in passenger fares.

ILLINOIS

Edwardsville—One of the cages in the No. 3 coal mine here fell down the shaft recently carrying a loaded coal car with it. The shaft was damaged and the hoisting apparatus was incapacitated. The 36 miners who were below had to climb up the airshaft. Nobody was hurt.

Hanna City—An explosion recently in the Empire Mine of the Logan City Coal Co. killed one man and fatally injured another while 75 miners were entombed two hours. The explosion occurred in gallery No. 6, 250 ft. below the surface and more than a mile from the mine opening. Escape to the shaft was cut off by a fall of slate and coal which filled the gallery. Fire broke out and it was an hour before the flames were extinguished. The imprisoned men were then located by tappings and rescued. The cause of the explosion has not been determined. The damage to the mine was several thousand dollars. State mine examiners are investigating.

Danville—The Interstate Commerce Commission was recently restrained from hearing further evidence in the discrimination and damage suits brought by coal companies against the railroads. The coal companies must now seek relief in cases of this nature in the state courts. This case is said to be the first of its kind that has come before the U. S. Court in this district and sets a precedent. The three judges hearing the case held that the Interstate Commerce Commission had no jurisdiction in the matter.

WYOMING

Kemmerer—Two miners in the employ of the Diamond Coal and Coke Co. recently entered mine No. 1 before the fire boss had given permission, thereby endangering their own lives and those of others. The men were arrested, arraigned before a justice of the peace, and after being found guilty, were fined \$25 and costs.

FOREIGN NEWS

Cardiff, Wales—Two thousand miners in the Aberdare district and 400 at Dunvant recently went on strike, protesting against the employment of non-union men. They appointed grievance committees to confer with the colliery owners.

London, England—The Board of Trade is urging coal merchants to lay in as great a stock of coal as they are able to store before the advent of winter. This is done not only with the object of keeping the mines in full work, but also to reduce to a minimum the demands upon carting and transport facilities in general during the coming season. Householders are also urged to follow the example of the dealers where they have accommodations for storing coal, so that later on the available resources may be used to supply those who have no storage place at their disposal.

PERSONALS

James M. Page has resigned his position as superintendent of the Sunnyside Coal Mining Co.'s mines at Strong, Colo.

James J. Stickler has been appointed mine inspector in the 18th district of Pennsylvania, filling the vacancy caused by the death of John E. Curran.

Frank P. Cory, for the past few years superintendent for the Kennon Coal Co., of Flushing, Ohio, has been appointed deputy mine inspector for the 9th district.

W. L. Hughes, formerly connected with the Midland Coal Co. and at the head of the Hughes Coal Co. at Drakesboro, Ky., is now associated with the reorganized Lam Coal Co. at Bevier, Ky.

W. J. Wolfe, for the past several years superintendent of the Four States Coal Co.'s mine at Annabelle, W. Va., has resigned his position and will be succeeded by A. C. Beeson, from Pittsburgh, Penn.

George Watkins Evans, consulting mining engineer of Seattle, Wash., has returned from the Bering River coal field where he was in charge of subdividing it into units of from 320 to 2,560 acres for the United States Bureau of Mines.

F. B. Sutton, of Birmingham, Ala., engineer for the Bureau of Mines for the Southern District, has been spending some time at the Knoxville, Tenn., office. He recently addressed the meeting of the mine foremen of Tennessee held at Coal Creek.

John Harding, interested in the Connellsville coke industry for a number of years, has assumed the superintendency of the Garwood plant of the Aetna Coal and Coke Co., succeeding C. L. Patterson. Mr. Harding has lately been in business for himself.

P. J. Harrigan, of Martin's Ferry, Ohio, for some years superintendent of the Wheeling and Lake Erie Co., has tendered his resignation and accepted the position of general superintendent of the O'Gara mines in southern Illinois. His new position embraces about 15 mines in the southern part of the state.

George W. Gehres, general superintendent of the Martin, Bowood, and Republic mines of the Republican Iron & Steel Co., has resigned his position to take effect at once. He has been in the service of the company nearly two years. He will be succeeded by George W. Morse, superintendent at the Republic works.

Henry Wharton has resigned as secretary of the Westmoreland Coal Co., effective Oct. 1. At a recent meeting of the company the resignation was accepted and the board elected Herman Roll, secretary and Howard R. Yearsley, assistant secretary. The company has also newly created the position of general sales agent and has appointed Carroll B. Nichols, former assistant secretary, to fill this office.

OBITUARY

William H. Hufstader, vice-president and general manager of the J. B. Jenkins Coal Co., of Buffalo, N. Y., died Oct. 4, at the age of 48. He had been ill for some time and was not expected to recover. He was formerly Buffalo sales agent of the Pittsburgh-Buffalo Co. and for a long time previous to that traveled for the Shawmut Coal & Coke Co. He was a man of excellent character and his loss will be severely felt. He leaves a wife and four children.

Charles Horning, Jr., for many years connected with the New York office of the Susquehanna Coal Co., died at his home, No. 2 Glenada Place, Brooklyn, Oct. 3, of a complication of diseases. He was born in New York City 51 years ago. Mr. Horning had been identified with the coal business for more than 25 years first as a salesman for W. M. Davidson & Co. Later he was associated with Percy Heilner & Son and then with Stickney, Conyngham & Co. When the Susquehanna Coal Co. succeeded the later company Mr. Horning remained with it becoming office manager some time later. He recently resigned his position and was to have become connected with Heilner & Son on Oct. 1. The deceased is survived by his widow and two daughters.

PUBLICATIONS RECEIVED

Annual Report of the Department of Public Works of the Province of Alberta, 1914. Unillustrated, 293 pp., 6½x10 in.

University of Texas, Bulletin No. 365. "Mineral Resources of Texas," by William B. Phillips. Illustrated, 362 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. "The Gypsum Industry in 1914," by G. F. Loughlin. Unillustrated, 9 pp., 6x9 in.

U. S. Geological Survey, Bulletin 620C. "Gold Deposits near Quartzite, Ariz.," by Edward L. Jones, Jr. Illustrated, 12 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. "The Production of Mineral Water in 1914," by R. B. Dole. Unillustrated, 44 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. Bulletin 622B. "Tin Mining in Alaska," by Henry M. Eakin. Illustrated, 13 pp., 6x9 in.

Annual Report of the Mine Inspector of Allegheny and Garrett counties, Md., by William Walters, Inspector. Unillustrated, 31 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. "The Production of Sand and Gravel in 1914," by G. F. Loughlin. Unillustrated, 12 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. "The Production of Borax in 1914," by Charles E. Yale and H. E. Gale. Illustrated, 5 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. "The Cement Industry in the United States in 1914," by Ernest F. Burchard. Illustrated, 38 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. "The Production of Bauxite and Aluminum in 1914," by C. W. Phelan. Unillustrated, 26 pp., 6x9 in.

Canada Geological Survey, Department of Mines, Memoir 69. "Coal Fields of British Columbia," compiled by D. B. Dowling. Illustrated, 350 pp., 6½x10 in.

Department of the Interior, U. S. Geological Survey. Bulletin 622C. "Mining in the Juneau Region, Alaska," by Henry M. Eakin. Unillustrated, 8 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. Bulletin 620D. "Some Cinnabar Deposits in Western Nevada," by Adolph Knopf. Unillustrated, 9 pp., 6x9 in.

U. S. Department of Labor, Bureau of Labor Statistics. "Monthly Review of the U. S. Bureau of Labor Statistics," Vol. 1, No. 2, August, 1915. Unillustrated, 78 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. "Gold, Silver, Copper, Lead & Zinc in New Mexico and Texas in 1914," by Charles W. Henderson. Unillustrated, 26 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. Bulletin 621B. "The Healdton Oil Field, Carter County, Okla.," by C. H. Wegemann and K. C. Heald. Illustrated, 17 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. Bulletin 622F. "Mineral Resources of the Chisana-White River District, Alaska," by Stephen B. Capps. Illustrated, 39 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. Bulletin 622G. "Mining in the Fairbanks and Hot Springs Districts, Alaska," by Henry M. Eakin. Unillustrated, 16 pp., 6x9 in.

Canada Department of Mines. "Results of the Investigation of Six Lignite Samples Obtained from the Province of Alberta," by B. F. Haanel and John Blizard. Illustrated, 110 pp., 6½x10 in.

University of Illinois, Engineering Experiment Station Bulletin No. 80. "Wind Stresses in Steel Frames of Office Buildings," by W. M. Wilson and G. A. Maney. Illustrated, 88 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. Bulletin 622I. "Iron Ore Deposits near Nome, and Placer Mining in Seward Peninsula, Alaska," by Henry M. Eakin. Unillustrated, 12 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. Bulletin 609. "The Fractional Precipitation of Some Ore-Forming Compounds at Moderate Temperatures," by Roger B. Wells. Illustrated, 46 pp., 6x9 in.

Annual Report of the Minister of Mines for the Year Ending Dec. 31, 1914, being an account of mining operations for gold, coal, etc., in the Province of British Columbia. Illustrated, 544 pp., 7½x10¼ in.

Department of the Interior, U. S. Geological Survey. Bulletin 621E. "A Reconnaissance in Palo Pinto County, Texas, with Special Reference to Oil and Gas," by Carroll H. Wegemann. Illustrated, 8 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. Bulletin 622E. "Mining on Prince William Sound and the Gold and Copper Deposits of the Port Valdez District, Alaska," by B. L. Johnson. Illustrated, 57 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. Water Supply Paper 362C. "Surface Water Supply of the United States," Part 12, North Pacific Drainage Basin, by Nathan D. Grover. Unillustrated, 246 pp., 6x9 in.

Department of the Interior, U. S. Geological Survey. Water Supply Paper 340L. "Stream Gaging Stations and Publications Relating to Water Resources 1885 to 1913," Part 12, North Pacific Slope Drainage Basin, compiled by B. D. Wood. Unillustrated, 49 pp., 6x9 in.

INDUSTRIAL NEWS

Brownsville, Penn.—A barge being towed by the steamed "Volcano" of the Diamond Coal & Coke Co. was recently caught in the swift current of the river and swept against the wall of lock No. 5, resulting in the loss of 7,000 bu. of coal.

Welch, W. Va.—Col. William Leckie has recently taken over 2,400 acres of coal land on Piney Creek, in Raleigh County, which was formerly owned by the McCreary interests. As soon as the railroad is extended up Piney Creek Colonel Leckie will develop this land.

Charleston, W. Va.—The Central-Fairmount Coal Co. has closed a yearly contract with a railroad company for the latter's entire requirements of coal, and is installing new equipment and hiring additional miners so as to increase the output of its local mines about one-third.

Moundsville, W. Va.—Men are now at work cleaning up the Fort Pitt mine across the river from Moundsville. The mine will be in shape for resumption in the near future. It is stated that this mine is to be sold at public auction shortly and will be put in operation immediately afterward.

Huntington, W. Va.—The past month's coal record on the Chesapeake & Ohio R.R. was higher than all previous records, by somewhat over 17,000 tons. During August, which was until September the banner month in the road's history, 2,423,120 tons were handled; while in September 2,440,955 tons were hauled.

Stockton, Penn.—The Lehigh Valley Coal Co. has started preparations for extensive stripping operations. As preliminary to the real work of taking out coal contractors are removing several hundred thousand tons of culm which has accumulated for years, the ground having been used as a dump for colliery refuse.

Harrisburg, Penn.—Estimates furnished on Sept. 30, to the Pennsylvania R.R., show a total of 1,370,000 tons of coal stored in the vicinity of Harrisburg. Of this amount 620,000 tons of anthracite coal is piled up at McClellan, bituminous being stored as follows: Lucknow, 250,000 tons; Enola, 250,000; Rutherford, 250,000 tons.

Boston, Mass.—Progress is being made on the new re-handling plant of the Darrow-Mann Co. at Mystic Wharf, Boston. A 600-ft. pier where the largest steamers can discharge is one of the features and there is ample yardage for forwarding shipments for delivery inland. Developments with regard to this plant are being followed with much interest by all the trade.

Trotter, Penn.—Suit was filed on Sept. 28 by Luke Gillen against the H. C. Frick Coke Co., for \$10,000 for personal injuries received from a fall of coal at the Trotter mine May 29, 1913. The statement of claim filed alleges that the plaintiff sustained a fractured collar bone, broken ribs and injuries about the head, arms and legs. Gillen was a track repairman inside the mines.

Hickman, Ky.—In view of probable controversy and another appeal to the Interstate Commerce Commission the Nashville, Chattanooga & St. Louis R.R. has split the difference in the increase in rates on coal it is authorized by the commission to charge. Instead of making the rate \$1.50 as the commission provided, the railroad is increasing the former price of \$1.20 to \$1.35.

Wilkes-Barre, Penn.—Judge H. M. Edwards recently handed down an opinion in the coal royalty case of the heirs of George M. Hull of Blakely against the Delaware & Hudson Coal Co. The decision is in favor of the plaintiffs. More than 6,000 typewritten pages of testimony were read and re-read by the Court, the opinion covers 100 pages and the request for findings and answers covers 175 pages.

Toledo, Ohio.—A job of salvaging which will go on record as the first feat of its kind ever attempted in Toledo harbor, will be attempted here by Harry Baker, of Detroit, a diver and wrecker, who will try to raise the steamer "Genoa" without removing its cargo of 1,200 tons of coal, and float it into dock. Baker has undertaken to cofferdam the vessel, pump the water from it and float it without lightering the cargo.

Philadelphia, Penn.—It has been estimated that the anthracite shipments for the month of September are at least 500,000 tons below the production of 1914, which was 6,296,192 tons. This past month, along with June, July and August were so short of tonnage that it is believed when the figures for September are officially announced it will show that the nine months of the year are 2,500,000 tons short of the similar period of 1914.

Salt Lake City, Utah.—While the details of the purchase of the properties at the American Fuel Co. by the Utah Fuel Co. have not been worked out, it is stated that the deal has been made. The price paid for the property is said to be between \$1,250,000 and \$1,500,000. It is stated that everything is ready for the final transfer as soon as inventories are made. It is believed, however, that the Utah Fuel Co. will not take charge of the property before Nov. 1.

Pittsburgh, Penn.—Residents of Valley Camp, a village on the Allegheny River near here, are in fear that the town will be engulfed in the abandoned workings of a coal mine over which the houses are built. Cracks recently appeared in several streets, and porches began to settle into holes which

suddenly yawned as the supports in the old entries and rooms gave way. Water and gas pipes were broken, and houses were damaged by falling plaster. All the affected streets have been closed by the authorities.

Louisville, Ky.—The bondholders of the Continental Coal Corporation have agreed in requisite numbers to the plan of reducing interest on an issue of bonds totaling \$1,900,000 for a two-year period ending July 1, 1917. For two years, under a trust agreement arranged in connection with the Louisville Trust Co., these bonds will pay 3 instead of 6 per cent. Consent of 80 per cent. of the bondholders was obtained. The corporation's mines are located in Bell and Harlan counties, and more than \$600,000 of the bonds are owned in Louisville.

Buffalo, N. Y.—The new box-car unloader built at the Lehigh Valley lake shipping docks at the Tift Farm is completed and has been given a trial. After some minor adjustments the apparatus will be used regularly in loading lake vessels. The car is not elevated, but is tilted up at an angle of 32°, first at one end and then the other, using a device for assisting the coal to run out of the doors to an apron, where it is taken up by pan conveyors and discharged into the vessel's hold without material breakage. It is claimed that 1,000 tons an hour can be transferred by the unloader, which is an entirely new invention, calculated to handle box cars without taking up either so much time or ground as the present wooden trestle. It was built by the McMyler Interstate Co., of Ohio.

New Orleans, La.—Coal concerns operating in this territory were the heaviest sufferers from the storm of Sept. 29 and 30. There are 22 known dead in New Orleans; 250 dead in the parishes surrounding the city, and the damage done to property can only be estimated in the millions. The work of rehabilitation is being pushed rapidly, and business has been put back to practically a normal basis. The greatest loss of the storm probably will be sustained by the Monongahela Coal & Coke Co., which lost a power boat, tugs and 246 barges loaded with coal. Captain J. S. Menges, manager of the floating stock of the Monongahela company, and three in his crew were drowned. Work of raising the coal from the bottom of the Mississippi is being pushed rapidly. Suction dredgers have been ordered from various headquarters of the company. The W. G. Coyle Coal Co. lost two pump boats and four barges. The Crescent City Coal Co. lost two tugs and four barges loaded with coal. The Alabama & New Orleans Transportation Co.'s lighter No. 3 was beached 80 miles below the city, but all efforts are being made to float her. A tug boat and barge, property of the Bisso Towboat Co., sank at the head of General Taylor St. The barge was loaded with coal. The West Kentucky Coal Co. lost 70 loaded, and two empty coal barges and four pump boats. The reserve fleet maintained by the company was completely wiped out, not a barge or pump boat being saved. The fleet at the coal loading station fared a little better: one angle boat, two loaded, and 23 empty barges being kept afloat. A total of 36,000 tons of coal was contained in the 70 loaded barges which went to the bottom, but it will be possible to salvage a certain proportion of this by dredging, since the barges sank at their moorings.

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., OCTOBER 1, 1915.

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C. W. Dibble, Vice-President.
HILL PUBLISHING COMPANY.

Sworn to and subscribed before me this 30th day of September, 1915.

RICHARD L. MURPHY,
Notary Public.
(My commission expires March 30, 1917.)

Coal Trade Reviews

General Review

Colder weather releases more anthracite orders. Strong constructive features in the bituminous market. Export trade dominated by vessel situation. Large movement from Upper Lake ports. Middle Western trade satisfactory.

Anthracite—An encouraging and satisfactory briskness characterizes the hard coal market. The tonnage movement is still substantially less than normal, but with anything like average weather conditions an active business is assured for the next half-year. Coal is moving out freely from the retailers' yard, and more orders to the wholesalers are being released, some even being of an urgent character. An encouraging feature of the situation is the firm position dealers are now taking as regards credit, all orders not on a strictly cash basis being generally declined. Colder weather toward the Northwest has started coal moving to interior points from the upper Lake ports making more storage room available, and releasing further shipments from this end.

Bituminous—Prices are steady, the market well maintained, and there is a well defined feeling that next month will find the situation much stronger. The market has shown a persistent improvement over the past several weeks, and along conservative lines. Strong constructive features have developed in the shape of the restricted car and labor supply and the expanding export trade, with the result that dealers are openly optimistic and some even enthusiastic regarding the outlook. Scarcely any free coal is noted in any direction, and some manufacturers are even taking tonnages exceeding their contract agreements. So far there has been no particularly significant price change with the possible exception of general hardening all along the line and particularly as regards the better qualities.

Exports—Our foreign trade is now completely dominated by the vessel situation. The steadily increasing demand for grain vessels, noted over the past several weeks, has resulted in freights being whirled up to absolutely prohibitive levels, except in the case of most urgent demand. The export movement has contracted in direct proportion to the increase in freight rates. The September dumpings over the Hampton Roads piers show a sharp decline over the previous month, while the weekly movement out of Baltimore now occasionally gets down to about one-fourth the maximum. The situation is even reflected in the coastwise freights which are stiffer and slightly higher.

Lake Trade—The usual between-season contradictions prevail in the Ohio trade. It is generally agreed that the market is some stronger in any event, though it is noted that the consumers in certain localities are still confident of being able to obtain all the coal they require at any time and are showing no interest. The car shortage is now definitely at hand and shippers are refusing to consider orders in which any special equipment is specified. The recent cold snap in the Northwest brought with it a flood of urgent orders indicating that retailers' stocks are light, but there is still little storage space available, and receipts continue small for the time being.

Middle West—Sporadic low temperatures have created some activity in retail distribution which has been supplemented by some heavy buying as a result of the advance in the freight rates, effective the first of the current month. The market is not notably active, but the technical position is strong. Prices are generally on a substantially higher level than a year ago, and operators in some districts are already sold up ahead on certain grades. Accumulations of the steam sizes are noted as a result of the increased production of the domestic grades, but there is no attempt being made to force the market. Working schedules in the mining regions are much improved.

A Year Ago—Anthracite collieries continue on a full time basis, but the demand has slowed up temporarily. Considerable bituminous coal available and current business generally discouraging. Large preponderance of finer sizes still demoralizing the interior market. England increases her export shipments.

BUSINESS OPINIONS

Iron Age—September made an astonishing record for steel and pig iron output, and the pace is even faster in the first week of October. The present month, in view of the custom at all plants to strain for records in October, now promises the passing of the 3,000,000-ton mark in both pig iron and steel ingots. Pig iron production in September was 2,852,561 tons, or 95,085 tons a day, well beyond the daily rate of 92,369 tons in February, 1913, the previous record month. The 268 furnaces in blast Oct. 1—a gain of 19 in the month—had a daily capacity of 97,535 tons, and as a few furnaces have blown in in the past week, pig iron production is now at the rate of about 36,000,000 tons a year. It was 33,500,000 tons a year as September opened.

American Wool and Cotton Reporter—The wool market is recovering from the slight easing off which it recently underwent. It is steadier than it was for the previous week. The consensus of opinion is that prices will remain at least steady and a good number feel that advances will be made. A quantity of wools at cheap prices have sold, including medium grades.

Boston News Bureau—It seems idle to talk pessimistically when every fundamental factor in this country seems favorable for the time being. General trade, outside of war orders, has apparently called the turn for the better. Railroad earnings are beginning to show a marked improvement. The strength in raw products is based purely on demand and supply. But the great advance in prices of some raw products has served to conserve sentiment. Cotton mills are not purchasing the quantity of cotton they usually do at this season of the year because of the sharp advance in the price. We are in the midst of a wild speculation in the so-called war stocks. This strength, however, has a basis and that is their earning power. Perhaps the most pleasing feature in the market situation is the increasing strength in the railroad securities.

Bradstreet—Trade reports, good last week, are even better this week. There is more snap to trading, uncertainty about the future has well-nigh given place to certainty, interest in the European war is simmering down to a discussion of what it will produce in the way of orders for the United States, the Anglo-French loan to be floated here favorably affects credit-making factors, money is abundant at low rates, some branches of the finished steel industry are in a sold-up condition, railway buying is in evidence, reports of car shortages in the Middle West are noteworthy, labor is becoming scarcer, lower temperatures have quickened distribution of seasonable goods, and payrolls continue to expand. Incidentally, flour millers at the Northwest are sold ahead, some munitions plants are working three shifts in 24 hr., machine-tool shops are taxed to make deliveries, and in some centers these interests are bidding against makers of munitions for needful labor.

Dun—Success of the foreign loan negotiations foreshadows a further extension of American enterprise and emphasizes the position occupied by this country in the field of international finance. With constructive factors multiplying, prospects steadily brighten, and actual gains in business are now more in keeping with the growth of optimistic sentiment. Almost without exception, reports from the leading centers tell of accumulating evidence of progress and only in isolated cases, such as in the lumber trade, is depression still manifest.

Marshall Field & Co.—The current week shows a more active wholesale distribution of dry goods. There has been a larger attendance of buyers in the market. Collections are fair. The advancing market on raw cotton has resulted in material advances in prices on cotton yarns and in many lines of cotton goods. The conservative manner in which retail merchants have been buying during the last few months and their light commitments for fall delivery have created a shortage in many lines of merchandise, which always means advancing prices as well as uncertain deliveries.

ATLANTIC SEABOARD

BOSTON

Hampton Roads market continues steady. Georges Creek and Pennsylvania grades practically unchanged. Water freights slightly firmer and anthracite situation is improved.

Bituminous—The market for Pocahontas and New River continues steady and prices f.o.b. Hampton Roads are reasonably well maintained. While there are no pronounced developments for October coal there is now a well-defined feeling that by November the situation on the Southern coals will be much stronger. Much of this is based on the good outlook for export trade, but the prospect rests somewhat on a possible curtailment in car supply and also on a shortage of labor. One of the interesting bits of news from the mining regions concerns the scarcity of skilled help as engineers, machinists, and others. They are so much in demand at munition plants that tempting inducements have been made and in many cases accepted.

Water freights are a little firmer; 70c. was paid this week on a barge from Hampton Roads to Providence, which is 5c. up from previous charters; 80c. is a quotable rate from the same ports to Boston. The owners of the schooner "Mary W. Bowen," about 3,500 tons capacity, long a familiar vessel in the coastwise coal trade, are negotiating to sell her to freight lumber from Canada to France, a further illustration of the passing of the schooner collier.

The Georges Creek shippers are handling a normal output with ample coal for spot requirements. There is no apparent shortening up, but the off-shore demand is counted upon to absorb a large tonnage during November.

There are no special developments in the Pennsylvania grades. The quality coals show some signs of hardening prices, but there is no price movement that is at all general.

Anthracite—The retailers are now amply supplied with business and the wholesale market is looking up considerably. Orders have been coming in very steadily the past week and the dealers are beginning to press for shipments. Broken coal is quite short at the loading piers and there is an increasing shortage of the steam sizes.

Bituminous quotations, f.o.b. loading ports at points designated, are about as follows per long ton:

	Philadelphia	New York	Baltimore	F.o.b. Mine
Clearfields.....	\$2.15@2.65	\$2.45@2.95	.....	\$0.90@1.40
Cambrias and Somersets.	2.40@2.90	2.70@3.20	.....	1.15@1.65
Georges Creek.....	2.92@3.02	3.22@3.32	\$2.85@2.95	1.67@1.77

Pocahontas and New River prices, on cars Boston, are \$3.55@3.73, Providence, \$3.50@3.68, and f.o.b. loading port at Hampton Roads, \$2.80@2.85.

NEW YORK

Anthracite market shows improvement. Buying active and prices for individual coals much stiffer. Bituminous demand increases. Better prices asked and outlook bright.

Anthracite—The first week in October has brought about much improvement in the anthracite market. Weather conditions have been favorable for coal consumption and coal is beginning to move. Wholesale buying is more active than last week and quotations are closer to the full companies' circular for the individual product.

Demand along the line shows greater improvement than at Tidewater. The betterment is more noticeable among the independent coals than elsewhere. Occasionally odds and ends have been let go at less than August prices, but most of the coal is bringing at least full August circular and some better.

Nut coal is the longest of the prepared sizes. In the steam sizes buckwheat is becoming scarcer; the better grades are commanding the full circular, while the cheaper coals are being taken up quickly.

Current quotations, gross tons, f.o.b. New York, tidewater, follow:

	Circular	Lower Ports Individual	Upper Ports Circular	Individual
Broken.....	\$5.05		\$5.10	
Egg.....	5.30	\$5.20@5.30	5.35	\$5.25@5.35
Stove.....	5.30	5.20@5.30	5.35	5.25@5.35
Chestnut.....	5.55	5.30@5.55	5.60	5.40@5.60
Pea.....	3.50	3.25@3.50	3.55	3.50@3.55
Buckwheat.....	2.75	2.25@2.75	2.80	2.25@2.80
Rice.....	2.25	1.85@2.25	2.30	2.00@2.30
Barley.....	1.75	1.50@1.75	1.80	1.75@1.80

Bituminous—The bituminous situation at tidewater shows much improvement and demand and prices are much stronger. Dealers appear to be enthusiastic over the outlook and predict still better business within the next week or ten days.

Some are of the opinion that the long looked for rush is very near.

The demand from manufacturers all over the East is increasing and many are now taking more coal than their contracts call for. At Tidewater there is no large quantity of free coals and what can be spared is easily placed. All surplus coals are being held firmly and in urgent cases very good prices are being received. The harbor is fairly well cleared up of demurrage coal.

Labor is scarcer and this is becoming serious problem in some cases. Car supply on two of the largest roads was good the first three days of the week and bad the last three.

Exporters report good demand. One large exporter predicts shipments of 1,500,000 tons a month shortly. It is also reported that a contract has been closed for sending 6,000 tons of gas coal to Italy. Bunkering business continues active.

Quotations f.o.b. New York tidewater per gross ton follow:

	South Amboy	Port Reading	St. George	Mine Price
Georges Creek Big Vein.	\$3.20@3.30	\$3.20@3.30	\$3.20@3.30	\$1.75@1.85
Georges Creek Tyson....	2.95@3.00	2.95@3.00	2.95@3.00	1.40@1.45
Clearfield:				
Medium.....	2.65@2.80	2.65@2.80	.....	1.10@1.25
Ordinary.....	2.65@2.70	2.65@2.70	.....	1.10@1.15
Broad Top Mountain.....	.....	.....	.....	1.10@1.45
Cambria County:				
South Forks.....	2.90@3.05	.....	.....	1.35@1.50
Nanty Glo.....	2.80@2.85	.....	.....	1.25@1.30
Barnesboro.....	2.65@2.70	.....	.....	1.10@1.15
Somerset County:				
Quemahoning.....	.....	2.80@2.90	2.80@2.90	1.25@1.35
Medium.....	2.65@2.70	2.65@2.70	2.65@2.70	1.10@1.15
Latrobe.....	2.55@2.65	.....	.....	1.00@1.10
Greensburg.....	2.85@2.90	.....	.....	1.20@1.25
Westmoreland.....	3.20@3.30	.....	.....	1.40@1.50
West Virginia Fairmont 1/2	.....	2.70@2.80	2.70@2.80	.90@1.10
Fairmont mine-run.....	.....	2.60@2.70	2.60@2.70	.80@.90
Steam.....	.....	2.55@2.60	2.55@2.60	1.00@1.05
Western Maryland.....	.....	2.35@2.40	2.35@2.40	.85@.90

PHILADELPHIA

Anthracite broken and stove in demand. Nut and pea better, but egg is off. Steam sizes active. Price cutting in retail trade grows. Bituminous continues to improve. Exports quiet, with vessels scarce.

Anthracite—Prosperity in a mild form prevails in the local market. All shippers are reporting greatly improved conditions. However, while there is some briskness due to the return of normal weather conditions, the tonnage is still behind what was expected. But with anything like favorable weather conditions there should be six straight months of good business from now on.

Dealers' teams are now seen in greater numbers on the streets than for a long time. All retailers report moving considerable coal and in fact seem to be busier than the shipper, but there is no doubt that dealers will begin to order in greater volume now. Shippers report collections better, which is very encouraging as it indicates that the retailer is doing more of a cash business. Retailers are now insistent on cash payments and are declining all other business.

While the railroads are not advertising the fact to the public, the car shortage "bug-bear" is looming up at no distant date.

Broken coal continues in active demand, more especially by the manufacturers. Egg coal has fallen off to some extent and the price has weakened. One conservative old concern with a very high-grade coal surprised a few selected buyers by offering this size at \$3.65 at the mines. Stove is still strong, both in demand and price. Chestnut, while still far from normal, has shown a slow but steady improvement. Pea is undeniably firmer, but it is known that several individuals have offered to contract until Jan. 1, at \$2 and no tax; this is in the face of considerable talk of a general advance of 25c. per ton on Nov. 1. Retailers will not like to see such a price effective as it will enable the price cutters to continue harassing their higher-priced competitors and spoil the effect of the advertising of the dealers who always maintain prices.

As noted last week, the steam sizes have assumed some briskness, which has continued and seems likely to for some time, as more people see the wisdom of stocking up against emergencies.

Circular prices, f.o.b. mines, per gross ton, to which the Pennsylvania State tax of 2 1/2% per ton must be added, are as follows:

	Line	Tide		Line	Tide
Broken.....	\$3.50	\$4.75	Pea.....	\$2.50	\$3.25
Egg.....	3.75	5.00	Buckwheat.....	1.25	2.25
Stove.....	4.00	5.00	Rice.....	.85	1.75
Chestnut.....	4.15	5.25	Barley.....	.50	1.50

Bituminous—The market is growing better all the time and all seem to be most optimistic as to the future. There

has been no rush, the improvement having come gradually until most of the operators are now quite busy. Many companies are reporting car shortage in spite of the fact that many railroad officials claim they are meeting the demand and expect to continue doing so. The operators resent this attitude, especially since they are compelled at a time like this to shut down occasionally because of a lack of cars. The export business still remains somewhat quiet, but even at that a fair tonnage is going forward. This trade continues to be handicapped by a lack of vessels and the storms of the past week have prevented so many ships from making port that some concerns with considerable coal at tide, are worrying about car-demurrage bills.

There seems to have been a general though slight increase in prices and a good average per gross ton at the mines is:

Georges Creek Big Vein..	\$1.70@1.80	Fairmont gas, 1/2	\$1.25@1.35
South Fork Miller Vein..	1.55@1.65	Fairmont gas, mine-run..	1.10@1.20
Clearfield (ordinary).....	1.15@1.25	Fairmont gas, slack.....	.75@.85
Somerset (ordinary).....	1.10@1.20	Fairmont lump, ordinary..	1.00@1.10
West Va. Freeport.....	.95@1.05	Fairmont mine-run.....	.90@.95
		Fairmont slack.....	.65@.75

BALTIMORE

Big orders for foreign coal are piling up, but the movement is still restricted by lack of bottoms. Bituminous market gradually stiffens. Anthracite at retail now on the maximum winter basis.

While a total of more than 200,000 tons was exported from Baltimore during the month of September, the latter half of the period saw a big drop. Only 20,287 tons moved the last week in September. Three to four times that amount was shipped in some of the weeks of July and August. The delays are due to the fact that vessel bottoms are scarce. Several vessels under time coal charters are expected the coming week, however, and the export movement should improve again.

With business steadily improving the anthracite dealers here have settled down for a brisk fall and early winter period. On Oct. 1 the highest winter schedule to the retail trade, which provides an extra 25c. charge for hauling in heavy weather, went into effect. This schedule is as follows: Hard—No. 1, \$7.35; No. 2, \$7.60; No. 3, \$7.85; No. 4 (nut), \$8.10; pea, \$5.85; buckwheat, \$4.50. Sunbury—No. 2, \$7.85; No. 3, \$8.10; No. 4, \$8.35. Lykens Valley—No. 2, \$8.60; No. 3, \$8.85; No. 4, \$8.85. To this a charge of 25c. a ton is added when delivery is by bags or baskets.

The bituminous market is gradually stiffening. Car shortage was again a very apparent factor. Prices were firm at the following figures:

Mines	Balt.*	Fairmont	Mines	Balt.*
Geo. Crk. Big Vein	\$1.75 \$2.93	Ordinary mine run	\$0.85	\$2.28
Geo. Crk. Tyson.....	1.40 2.58	Ordinary 1/2	1.00	2.43
Clearfield.....	1.25 2.43@2.48	Ordinary slack.....	.65	2.08
South Fork.....	1.45 2.63	Low sulphur mine-		
Latrobe.....	.95 2.13	run.....	1.10	2.53
Somerset (best)...	1.35 2.53	Low sulphur 1/2	1.25	2.68
Somerset (good)...	1.20 2.38	Low sulphur slack..	.75	2.18
Queamahoning.....	1.30 2.48@2.53			
Freeport.....	.85 2.03@2.08	*F.o.b., outside Capes.		
Miller Vein.....	1.10 2.28@2.33			

HAMPTON ROADS

Dumpings for week not so heavy as anticipated. Shipments from Hampton Roads during month of September amounted to 1,408,194 tons.

The coal dumpings over the Tidewater piers at Hampton Roads have not been as much as anticipated. There has been a falling off somewhat in the export movement with coastwise about normal. There has been a fair number of bunker steamers calling here and also a quantity of bunkers supplied to the Atlantic Fleet in Hampton Roads. Of the coal exported the largest quantity has gone to Italian ports, viz.—Spezia, Leghorn, Genoa, Torre Annunziata, Catania and Naples. The largest single shipment was loaded into the collier "Ulysses" for Cristobal and amounted to 12,010 tons of cargo and about 1,000 tons of bunkers.

The quantity of coal in cars on the railroad yards while not extra heavy is at the same time in excess of the normal with demand light. Circular prices are still being quoted on all grades but it is believed that some of the suppliers are shading these prices somewhat in order to dispose of coal on which there is a prospect of demurrage.

During the month of September there was shipped from the three ports on Hampton Roads 1,408,194 tons of coal of which the Norfolk & Western dumped 722,670 tons, the Virginian Ry. 311,674 and the Chesapeake & Ohio Ry. 373,850 tons. Although the Norfolk & Western dumped more coal than the other two roads combined, at the same time they have fallen behind their August dumpings. The Chesapeake & Ohio Ry. is also considerably behind their August figures while the Virginian Ry. has shown some advance over their last month's dumpings.

Railroad Tonnages—Dumpings over the local piers for the past five weeks compare as follows:

Railroad	Sept. 4	Sept. 11	Sept. 18	Sept. 27	Oct. 2
Norfolk & Western.....	232,334	156,459	182,047	163,400	131,055
Chesapeake & Ohio.....	82,485	93,260	87,680	91,341	72,996
Virginian.....	72,302	70,855	59,597	79,176	59,997
Totals.....	387,182	320,574	329,336	333,917	264,048

Ocean Charters, Clearances and Freights

OCEAN CHARTERS

The following charters have been reported from various sources during the past week:

PHILADELPHIA				BALTIMORE—Continued			
Vessel	To	Tons	Rate	Vessels	To	Tons	Rate
P. W. Sprague	Manzanillo	709	\$3.75	Avona	Sweden	1,862	
C. E. Randall	Fajardo ¹	863		Alf	Bocadel		
Wm. Booth	Calais	435	1.30		Toro		
Frances M.	Cay Francis	1,096		Kennebec	Galveston	1,378	
M. P. Smith	Cay Francis	528		E. J. Lawrence	Boston	2,483	
F. C. Bowen	Calais	892	1.35	R. E. Merrill	Boston	2,309	
¹ Porto Rico				¹ Or Virginia			
BALTIMORE				VIRGINIA			
Kaupanger	Gothenburg	2,104		Monkstoae	Montevideo ¹	1,961	\$8.64
H. Jensen	Port Limon	1,127		Nairn	Suez	2,324	
Kanawha	Guantanamo	1,906			¹ Option Buenos Aires	\$8.88	Oct.
Sangstad	Port Limon	1,459		ATLANTIC RANGE			
S. Guiseppe	Genoa	583	10.08	Muskegon	Port Miltar	2,129	
Unbe Mendi ¹	Italy	2,064					
Chasehill	Genoa	2,960	10.80				

VESSEL CLEARANCES

The following steamers have cleared from various ports, Sept. 24 to Oct. 1:

NORFOLK			PHILADELPHIA		
Vessel	Destination	Tons	Vessel	Destination	Tons
Taquary ¹	Pernambuco	2,027	M. Belding	Jacksonville	492
M. Haskell ²	Gabelo	2,295	F. Greedick	Gardenas	1,000
Berwindvale ³	Havana	8,000	Berlin	Havana	1,400
Ulysses ²	Cristobal	12,010	Skulda ⁴	Sagua	
Pietro ⁴	Naples	4,128	Frank Brainerd	Nantucket	300
Montowoc ⁵	Buenos Aires	6,040	Camino	San Francisco	3,308
Trodenskjild ⁶	Curacao	5,500	Bast ²	Gloucester	
Stathatos	Leghorn	5,590	Brookside ³	Brookline	
Mar Tersp ⁴	Catania	6,000	Henry Claye	Portland	
Francesco ⁴	Annunziata	5,016	Saucou	Boston	
Guiseppi G. ⁴	Genoa	4,800	Marion	Gloucester	
Nairn ¹	Suez Canal	5,000	Leesport ¹	Searsport	
M. Haskell ¹		2,500	Kimberton	East Boston	
B. H. King ⁴	Ponta delgarta	1,445	Manatawny	Biddeford	
NEWPORT NEWS			NEW YORK		
Kintail ⁷		5,072	Barry	Portland	
Panama ⁸	Valparaiso	3,500	Meriam	Boston	
Lovland ³	Gardenas	3,600	Langhorne	Everett	
Harlem ⁹	Spezia	3,800	Temple	Portsmouth	
Belzier ¹	Cienfuegos	2,250	Pocopsen	Milton	
M. Pickands ¹	Mazron	1,500	Preston	Bath	
			Ehprata ⁶	Portland	
			Mingo	Portland	

BALTIMORE	To	Rate	To	Rate
Sangstad	Costa Rica	3,413	St. John	4,386
Hans Jensen	Sweden	2,694	Charlottetown	603
Franklin	Egypt	7,031	Yarmouth	1,022
Alf	Panama	2,949	Halifax	1,420
Kaupanger	Sweden	4,200		

¹ Smokeless Fuel Co. ² W. C. Atwater & Co. ³ Berwind White. ⁴ Pocahontas Fuel Co. ⁵ C. G. Blake Co. ⁶ Baker Whiteley Coal Co. ⁷ C. H. Sprague & Co. ⁸ Cin. & Ohio, C. & C. Co. ⁹ Phila. & Reading C. & I. Co.

OCEAN FREIGHTS

The freight market on grain is simply "boiling," and \$15.60 per ton is now bid on grain to the West Coast of Italy. With this very active demand for grain it is materially difficult to interest owners in coals, and we cannot quote freight rates to the Mediterranean or even to the Plate with any degree of certainty. We would quote freight rates on coal by steamer as follows:

To	Rate	To	Rate
Havana.....	\$2.50@2.75	Bermuda.....	\$3.00
Cardenas or Sagua.....	2.75@3.00	Vera Cruz.....	5.00@5.50
Cienfuegos.....	3.00@3.50	Tampico.....	5.00@5.50
Port au Spain, Trinidad.	3.75@4.00	Rio.....	8.64@9.12
St. Lucia.....	3.50@3.75	Santos.....	8.64@9.12
St. Thomas.....	3.25@3.50	Montevideo.....	8.40@9.60
Barbados.....	3.75@4.00	Buenos Aires or La Plata	8.64@9.60
Kingston.....	2.75@3.25	Rosario.....	8.88@9.84
Curacao.....	3.25	West Coast of Italy.....	10.80@13.20
Santiago.....	3.00@3.25	Barcelona.....	10.56@11.52
Guantanamo.....	3.00@3.25	Valparaiso or Callao.....	7.50
Demerara.....	5.50@6.00	Marseilles.....	10.80@12.00

* Consignees paying dockage dues. ** Spanish dues for account. † Quotations on Plate coal by British steamers; neutral steamers are more difficult to obtain and the rates are always higher.

W. W. Battie & Co.'s Coal Trade Freight Report.

LAKE MARKETS

PITTSBURGH

Spot prices firm; contract coal easy. Operators at 60 to 70%, with more car shortages reported. Demand from steel industry heavy.

The market for spot shipment continues firm, but contract prices are not correspondingly strong; that is, mine-run is stronger at \$1.05 for prompt than it is at \$1.15 on contract to Apr. 1. The market is preparing for the decreased absorption that regularly occurs with the termination of Lake shipments, even though the decrease this time will be less than usual as Lake shipments are unseasonably light. Mine operations are at between 60 and 70%, taking the district as a whole.

Car shortages are being reported still more frequently and a decided scarcity is one of the possibilities of the next six weeks, as final shipments for Upper Lake ports are being made.

The steel industry continues to absorb its maximum of coal, but does not seem to be stocking up to any extent. Railroad demand is improved, with some stocking. Demand from retailers is below normal for the season, the weather being abnormally warm.

We quote free coal: Slack, 50@60c.; nut and slack, 90@95c.; nut, 95c.@\$1; mine-run, \$1.05; ¾-in., \$1.15; 1¼-in., \$1.25; contract to Apr. 1: mine-run, \$1.15; ¾-in., \$1.25; 1¼-in., \$1.35, per net ton at mine, Pittsburgh district.

BUFFALO

Bituminous strong. Cars growing scarce. Local demand better than further east. Anthracite beginning to move.

Bituminous—The market is strong, not only from a heavy demand, but from the growing scarcity of cars also; if this latter trouble grows much worse there will be a decided advance in price before long. There is no dependence to be placed on flat-bottomed cars now, some shippers refusing to take orders for them. The chief difficulty is soon to be in the lack of motive power and it now looks as if the late fall would see one of the most severe car shortages on record.

Reports from the Pittsburgh region are to the effect that the Pennsylvania R.R. is furnishing not more than 75% of the coal cars asked for in many instances, and the difficulty is just begun. The bituminous shippers from that district are not hesitating to refuse orders if there is any doubt about acceptance and prompt pay and the rule is to pay no attention to orders for flat-bottomed cars.

Quotations on best grades, f.o.b. Buffalo, are:

	Pittsburgh	Allegheny Valley	Penn. Smokeless
Lump.....	\$2.65	\$2.45	\$2.55
Three-quarter.....	2.50	2.25	...
Mine-run.....	2.40	2.15	2.30
Slack.....	2.05	2.00	2.30

Quotations and freight rates to points east of Rochester, N. Y., and Kingston, Ont., are per long ton and balance of this territory is on the short-ton basis.

Anthracite—The fall trade is setting in slowly. There have been quite a good many orders for delivery early in October, as that would not oblige payment to be made till November. Otherwise the improvement is not marked. Some increase in the rail movement is also reported and the shipments from the upper Lake docks are showing something of a fall-trade proportion, so that the Lake shipments can be kept up and possibly added to before long. The local anthracite trade is about as quiet as ever.

Shipments by Lake for the week were 98,650 tons, for September, 411,750 tons and for the season, 2,791,075 tons, as against 428,436 tons for September last season and 3,156,781 tons for the season to date last year.

Prices on anthracite per long ton, f.o.b. Buffalo, are: \$5.60 for grate, \$5.85 for egg and stove, \$6.10 for chestnut and \$4.30 for pea, to which 25c. per ton is added for delivery on board vessel. This price includes the Pennsylvania state tax.

COLUMBUS

The steam business shows increased strength. Considerable domestic buying and the tone of the market generally satisfactory. Price list is well maintained.

Increased demand for steam grades is the leading feature of the coal trade. This is noticeable in every direction and is due primarily to the activity shown in manufacturing circles. Munitions factories are springing up on all sides and the iron and steel industry is also booming. The tone of the market remains good and future prospects are growing brighter.

Considerable Lake tonnage is reported and vessels are busy moving coal from Ohio Lake ports to the Northwest. The congestion on the docks of the Upper Lake ports is relieved because of a better interior movement. The Toledo docks of the Hocking Valley loaded 88,000 tons during the week ending Oct. 1. A large percentage of this coal came from West Virginia, however. Shippers will be busy up to the close of navigation.

One of the worst features at this time is the appearance of a car shortage. On the Chesapeake and Ohio the shortage has been very marked. The Hocking Valley is making an effort to keep all of the coal cars possible on their lines. Shippers anticipate a rather severe car shortage during the winter.

Prices in Ohio fields, f.o.b. mines, are as follows, per short ton:

	Hocking	Pomeroy	Eastern Ohio	Kanawha
Re-screened lump.....	\$1.50	\$1.60		
Inch and a quarter.....	1.40	1.45	\$1.30	\$1.30
Three-quarter inch.....	1.25	1.35		1.25
Nut.....	1.15	1.25		1.15
Mine-run.....	1.05	1.10	1.00	1.05
Nut, pea and slack.....	.60	.65	.50	.55
Coarse slack.....	.50	.55	.40	.45

Mines have been working at about the following percentages of full capacity:

District	Sept. 11	Sept. 18	Sept. 25	Oct. 2	District	Sept. 11	Sept. 18	Sept. 25	Oct. 2
Hocking.....	40	45	50	50	Cambridge.....	44	45	45	45
Jackson.....	25	25	25	25	Massillon.....	40	45	45	45
Pomeroy.....	50	60	75	80	Eastern O.....	60	70	75	80
Crooksville.....	35	40	40	40					
					Average.....	42	47	50	52

CLEVELAND

Prices are again higher. The supply is small. Demand for domestic coal causes an advance in prices. Short car supply restricting shipments.

There is a generally improved market with an upward tendency that is quite marked. The demand for domestic fuel is not as large as in former years, natural gas supplanting coal in many homes, but the trade is buying more freely and the car supply is proving a factor in getting deliveries.

Only 270 cars of new coal arrived over last Sunday. This is smaller number than usual and very much less than was customary at this time of the year four or five years ago. Fine coal is advancing, due largely to the lack of three-quarter orders, the Lake trade being only fair, though better than it has been.

The Lake trade is easily summed up in the report of The Tomlinson Co., vessel managers and agents, of Duluth, which states that hard-coal receipts at Duluth-Superior to Oct. 1, 1915, totalled 1,129,220 tons, as compared with 1,070,800 to Oct. 1, 1914; bituminous receipts totalled 4,750,145 tons to Oct. 1 last, as compared with 6,309,300 tons to Oct. 1, 1914.

Jobbers are being quoted at the following prices, f.o.b. Cleveland per short ton:

	Pocahontas	Youghiogheny	Fairmont	Berg-holz	Ohio No. 8
Lump.....	\$3.70				
Lump, 6-in.....				\$2.30	
Lump, 1½-in.....		\$2.40		2.10	\$2.15
Lump, 1-in.....		2.30	\$2.05	2.00	1.95
Egg.....	3.70				
Egg, 6-in.....				1.90	
Mine run.....	2.80	2.15	1.95	1.85@1.90	1.85
Slack.....		1.75@1.80	1.85	1.65	1.85

DETROIT

Buying of steam coal well sustained. Colder weather revives interest in domestic sizes. Anthracite business confined chiefly to retailers. Lake trade continues light.

Bituminous—Steam coal users are buying with sufficient regularity to make a gratifying volume of business for local shippers. Prices are steady and the quantity of consignment coal pressed on the market is not troublesome. With the lower temperature now prevailing domestic coal is coming in for more interest and inquiries are more frequent. However, still more frigid weather will be necessary before the business is really active.

Anthracite—High temperatures, through most of September restricted the retail business in anthracite but a more active demand is now apparent.

Lake Trade—The heavy demand for vessels to move grain has brought a rate of 6c. a bushel. Ship-owners, in the effort to take full advantage of these profitable rates are avoiding the delays attendant in moving coal by sending their vessels on the upbound trips without cargo. Some of the freighters carrying ore on contracts are handling coal but the movement is lighter than usual at this season.

TOLEDO

Lake trade quiet. Car shortage still expected.

The domestic trade is fairly strong, due partially to the cold weather of the past couple of weeks. Steam coal also continues to show more strength. Lake shipments are still light. Considerable less coal has moved from Sandusky docks of the Pennsylvania Co., this summer, contrary to expectations of a better business. The ore shipments on the other hand have been very strong; more than 85,000 tons were received at this port in six days, an unusual movement. Freight rates are increasing. Some of the boats will lay up after Nov. 4, the date when the LaPollette seamen's bill goes into effect.

CINCINNATI

Improvement in sentiment is evident, although business remains relatively slow. Demand is much below normal in all lines.

Increasing inquiries are noted, mostly from the retail trade, steam consumers still showing general indifference as to their fuel requirements. Both retailers and consumers are apparently confident of their ability to get all the coal they want. This feeling is undoubtedly responsible for the prevailing lethargy in the trade, coupled with the fact that barring a few chilly days the weather remains pleasant. Production of coal is also at a high rate and this has been largely responsible for the competitive conditions which have hurt business of late. The opinion is generally that the market requires some sustained cold weather and this can hardly be looked for early in October. It is felt that this is bound to come, however, and the trade therefore feels that the worst is over, and that good business is ahead.

LOUISVILLE

Between seasons condition prevails. Market less active at the moment but outlook is still encouraging.

There has hardly been enough cool weather to relieve the stocked-up condition of the retailers and they are not in the market at this time, while the accumulation of the steam sizes is worse than before; a considerable amount of this latter is on demurrage. Operations at the Kentucky mines are on about the same basis as a week ago, western Kentucky mines not being as active as those in the eastern field. Car-shortage troubles are not as keenly felt just now, however, but this is only on account of a slackening in the demand. Prices are only fairly well maintained on the following basis for the best grades, per long ton, f.o.b. mines: Block, \$1.75 to \$1.85, with the especially fancy grades going higher; 2x4-in. round, \$1.40 to \$1.45; nut and slack, from 50 to 60c., for the best grades, and screenings are in very poor demand.

COKE

CONNELLVILLE

Furnace coke contracts for 1916 at \$2.25 and \$2.35. Negotiations continue on sliding scale contracts. Spot coke firmer. Production and shipments not materially changed.

Very few furnace-coke contracts have been closed on a sliding scale basis, but in line with the suggestion in last report there has been some business done at flat prices. One contract involves 15,000 tons a month over the first-half at \$2.25 and another 15,000 tons a month over the year at \$2.25 if one brand is selected and \$2.35 if another is chosen. As a rule the operators quote \$2.35 to \$2.50 for first half, but would take a shade less over the year.

Sliding scale contracts under negotiation are usually on such a basis that with the coke to advance 20% as much as pig iron they would yield \$2.15 for the coke when basic pig is at its present level, \$15, valley. It is expected that many contracts will be closed within the next fortnight as buyers and sellers are now fairly close together, and enough business has already been put through to show approximately where the market stands.

Furnace-coke for prompt shipment has stiffened at least 10c. in the week. Foundry coke is firm for both prompt and contract. We quote: Furnace coke, spot, \$1.75@1.80; fourth quarter, \$2; first half, \$2.35@2.50; prompt foundry, \$2.30@2.60; contract foundry, \$2.40@2.60, per net ton at ovens.

The "Courier" reports production in the Connells ville and lower Connells ville region in the week ended Sept. 25 at 388,884 tons, an increase of 6,417 tons, and shipments at 387,013 tons, a decrease of 3,272 tons.

Buffalo—The price of coke is without material change, but the market is not as strong as bituminous coal, for the reason that the trade has been anticipated too generally. When iron began to move there were a great many idle ovens started

up and the result is an overproduction that has hurt the trade considerably. While producers do not like to admit this the jobbers are agreed that such is the case. Prices remain on the basis of \$4.30 for best 72-hr. Connells ville foundry and \$3.35 for stock coke.

Chicago—Byproduct coke is not so strong, and sales have been made as low as \$4.70 for egg and stove. The gas-house demand continues quiet, but furnace and foundry coke are active at firm prices. Connells ville coke has been sold in this market recently at around \$2.25 ovens.

Prices f.o.b. cars Chicago per net ton of 2,000 lb. are as follows: Byproduct foundry, \$4.90@5.10; byproduct domestic, \$4.75@4.85; Connells ville, \$4.85@5; Wise County, \$4.75@5; gas coke, \$3.75@3.85.

MIDDLE WESTERN

GENERAL REVIEW

Domestic buying still brisk. Smokeless situation improved. Screenings stronger. Anthracite buying improved at close of month.

The frosty tinge to the atmosphere has caused some activity in retail distribution and the retailer is coming into the market heavier now than his stocks are dwindling away. The volume of business, except in domestic coals, still continues slightly below that of last year, but prices in every direction are at a noticeably higher level.

A number of Western operators report that they are still sold ahead on domestic lump from two to four weeks. Screenings have declined no further, and if anything have stiffened slightly. An increase in the accumulation of smaller sizes has occurred at a number of mines, and operators are finding difficulty in moving them, but they are not resorting to price cutting.

No "distress" coal is heard of, and it seems to be the attitude of operators to hold coal at the mines rather than to jeopardize prices by forced sales. A decided turn for the better is seen in steam coals; industrial buying of these grades is in greater volume. Lake movement continues to be quite heavy.

CHICAGO

Southern Illinois market stiffer and circulars are advanced at other points. Eastern coals in good demand.

The southern Illinois situation is becoming stronger almost daily. Wholesale buying is quite active, and prices for all coals are much higher than at this time last year. It is felt that screenings have touched the bottom now, being stronger at from 60c. to 70c., as compared with 10 to 25c. this time last year. Shipments into Northwestern territory were very heavy prior to the first of the month in order to take advantage of the advance in rates. No. 1 nut is being bought freely, and No. 1 washed is well held, but the accumulation of other small sizes is causing trouble.

A new circular, effective Oct. 1, was announced by the operators in the Springfield district, which quotes 6-in. lump at \$1.75, nut and egg at \$1.60, and steam lump at \$1.50. The mines have not kept pace with domestic orders received, and screenings have slightly bettered in price. Pronounced activity now prevails in this field.

Very little Knox County coal is moving to Chicago, as most of it is absorbed by the steam trade in territory close to the mines. Clinton No. 4 and Sullivan County No. 6 domestic coals are moving in large volume to the retailers, and circular prices for October shipment are firm at \$1.70 to \$1.75. The domestic production of these mines is sold ahead for several weeks.

Considerable tonnage of Pocahontas has been delivered by independent producers at lower prices accepted earlier in the season. Mine-run has bettered, but is not at the full circular. The demand for lump and egg has improved. Prices this week have ranged from \$1.85 to \$2.25 for smokeless lump. Spot shipments of smokeless are light. Splint lump and egg is being disposed of as fast as produced, and prices in the Chicago district and westward are now well held owing to the stronger demand in other directions; 2-in. lump brings \$1.25, ¾-in. lump \$1.15, mine-run 85c., and slack mixture 40c. No change has occurred in Pennsylvania smokeless prices.

The demand for Hocking lump has been strong in Chicago and vicinity. Jobbers have been paying \$1.50 for 3-in. lump, and sales have been made as high as \$1.75, which has stiffened domestic sizes. It is said mine-run is improving and that screenings have advanced somewhat.

Eastern Kentucky shippers feel that they will be placed in an advantageous position by the announcement that West Virginia roads have been authorized by the Interstate Commerce Commission to advance rates to Ohio, Michigan and Indiana territory 15c. per ton on domestic sizes.

Quotations in the Chicago market are as follows:

	Williamson and Franklin Co.	Springfield	Sullivan	Clinton	Knox and Greene Cos.
Lump.....	\$1.60@1.75	\$1.65@1.75	\$1.50@1.60	\$1.35@1.40	\$1.40@1.55
Steam lump	.....	1.40@1.50	1.20@1.30	1.15@1.20	.....
2 1/2 and 3-in.	.....	.....	1.40@1.50	.....	1.30@1.40
1-in. lump.....	.....	1.25@1.30	1.25@1.30	1.15@1.20	.....
Egg.....	1.60@1.75	1.50@1.65	1.10@1.20	1.05@1.15	1.15@1.25
Nut.....	1.60@1.75	1.50@1.65	.95@1.05	1.00@1.05	1.00@1.05
No. 1 washed	1.35@1.40	.....	1.50@1.60	.....	.....
No. 2 washed	1.35@1.40	.....	1.40	.....	.....
No. 1 nut.....	1.35@1.40	.....	.....	.....	.....
No. 2 nut.....	1.35@1.40	.....	.....	.....	.....
Mine-run.....	1.10@1.15	1.05@1.10	.85@.95	.95@1.00	.85@1.05
Screenings.....	.60@.70	.40@.55	.60@.65	.55@.65	.75@.80

West Virginia splint, 3-in. lump, \$1.30@1.40; 1 1/4-in. lump, \$1.15@1.25.

DULUTH

Cool weather starts coal moving. Retailers' stocks apparently light. Prices show no improvement.

This territory has had the first real cool weather of the season during the past week, with the result that business in a retail way showed a remarkable increase and the dock companies have been favored with the best week's business of the season. Large shipments of the "rush order" variety were the feature of the week and this would seem to indicate that little coal has been bought during the past summer for fall or winter storage. With the approach of cold weather, dock companies are looking forward to some real business from those points.

Receipts continue to be light, a number of the docks having no storage space available. Prices remain about the same although in a number of instances, concessions have been noted. Quotations per short ton, f.o.b. cars Duluth, are as follows:

	Yough.	Splint	Hock.	Smokeless	Elkhorn
Lump.....	\$3.40	\$3.40	\$3.40	\$4.75	\$3.75
Dock-run.....	3.10	3.10	3.05	3.25	3.25
Stove or nut.....	3.40	3.40	3.40	4.75	3.65
Nut screenings.....	2.40	2.40	2.25	2.75	2.40

The demand for anthracite at this time of year is practically governed by the prevailing weather conditions. The cool weather during the past week has created quite a brisk market and the movement to country and interior points has been well up to the average. The dock companies are quoting f.o.b. cars, docks, per short ton, as follows: Egg and stove, \$6.85; nut, \$7.10; pea, \$5.55, and buckwheat, \$4.

ST. LOUIS

Readjustment in freight rates unsettles the market. Customary price increases at this time are not made.

When the Utilities Commission overruled the objections to the 5 1/2 c. increase in freight rates and gave notice that the increase would take effect Oct. 1, there was a scramble among East St. Louis dealers and steam users to have orders filled under the lower rate. The orders were for lump and screenings. The prices did not advance. The increased rates affected Granite City and all the other East side cities within the switching limits and the buying was as strong in these places as in East St. Louis. There was also some improvement in the movement to Southern and Western points.

Except for this flurry, the market is dull and prices were but little advanced on Oct. 1. Operators do not feel that under the prevailing conditions they can make the customary raise in prices at this time. The market is still overloaded, due to the unseasonable weather.

Quotations f.o.b. mines during the past week have ranged on the following basis per short ton:

	Frk. Co.	Wm. Co.	Staunton	Standard
3-in. lump.....	\$1.50@1.75	\$1.50@1.75	\$1.25@1.50	\$1.15
2-in. lump.....	.....	.....	1.15@1.20	1.00
3/4 egg.....	1.35@1.75	1.35@1.65	.....	1.00
No. 1 nut.....	1.50@1.75	1.50@1.75	.....	.85
No. 2 nut.....	1.40@1.50	1.40@1.50	.....	.65
No. 1 washed.....	.....	1.65	1.40@1.60	.....
No. 2 washed.....	.....	1.25	1.10@1.25	.....
No. 3 washed.....	.....	1.25	1.00@1.25	.....
No. 4 washed.....	.....	1.20	1.05	.....
No. 5 washed.....	.....	.60@.70	.50@.60	.....
Screenings.....	.40@.50	.40@.50	.35@.40	.40

Freight rates from the inner group of mines are: St. Louis, 5 1/2 c.; East St. Louis, 3 1/2 c. Outer group, St. Louis, 7 1/2 c.; East St. Louis, 5 1/2 c.

PRODUCTION AND TRANSPORTATION STATISTICS

CHESAPEAKE & OHIO RY.

The following is a comparative statement of the coal and coke traffic from the New River, Kanawha and Kentucky districts for July, 1914 and 1915, in short tons:

Destination	1915	%	1914	%
Tidewater.....	484,489	24	262,060	15
East.....	154,618	7	186,613	10
West.....	1,233,260	60	1,218,181	68
Total.....	1,872,367		1,666,854	
From Connections				
Tidewater.....	182,289	9	133,497	7
Bituminous.....	.....	.....	.....	.....
Anthra. (local).....	1,319		878	
Anthracite.....	.....	.....	.....	.....
Total.....	2,055,975	100	1,801,229	100
Coke.....	21,960		25,033	

SOUTHWESTERN TONNAGE

The following is a comparative statement of the Southwestern tonnage for May and the preceding three months:

State	March 1914	March 1915	April 1914	April 1915	May 1914	May 1915
Missouri.....	263,593	271,374	179,723	196,032	165,394	161,575
Kansas.....	501,841	522,242	378,192	410,565	370,097	354,264
Arkansas.....	165,037	90,252	87,002	80,118	95,749	71,023
Oklahoma.....	296,484	243,505	239,443	181,873	241,180	173,821
Totals.....	1,226,955	1,127,373	884,360	868,588	872,421	760,683

VIRGINIAN RAILWAY

Shipments of coal over the Virginian Ry. for the month of July amounted to 381,853 net tons, as compared with 301,932 tons in June.

IMPORTS AND EXPORTS

The following is a comparative statement of coal imports and exports of the United States for July, 1914-15, and for the seven months ending June, 1913-14-15, in long tons:

Imports:	July 1914	July 1915	Seven Months 1913	Seven Months 1914	Seven Months 1915
Anthracite, total	8,669	2,069	30	15,902	2,313
Bituminous, total	89,280	112,166	826,184	758,044	835,222
United Kingdom	26	680	3,464	8,258	15,410
Canada.....	78,190	91,932	678,611	588,904	673,864
Japan.....	8,215	9,480	63,665	30,983	46,379
Australia.....	2,699	9,574	77,634	128,018	96,993
Other countries.	150	500	2,810	1,881	2,576
Coke.....	9,011	3,657	39,698	61,715	24,389
Exports					
Anthracite total.	338,997	273,206	2,448,913	2,211,664	1,997,817
Canada.....	328,175	267,712	2,411,892	2,175,407	1,968,404
Other countries.	10,822	5,494	37,021	36,257	29,413
Bituminous total.	1,339,987	2,226,493	10,008,012	7,090,084	8,587,735
Italy.....	.....	502,750	.....	.....	1,641,791
Canada.....	1,005,859	1,016,413	7,120,245	4,525,830	3,790,586
Panama.....	17,450	52,805	321,507	168,898	280,027
Mexico.....	38,571	14,138	350,961	190,363	197,739
Cuba.....	77,880	91,162	772,366	616,574	620,237
West Indies.....	42,267	43,959	377,464	355,274	266,258
Argentina.....	15,320	114,162	48,626	112,408	533,891
Brazil.....	4,612	84,813	187,555	100,530	429,969
Uruguay.....	.....	26,689	.....	45,594	99,834
Other countries.	138,028	279,602	829,288	974,613	727,403
Total coal.....	1,678,984	2,499,699	12,456,925	9,301,748	10,585,552
Coke.....	57,648	69,825	550,751	408,441	430,604
Bunker coal.....	681,370	712,880	4,409,307	4,525,876	4,354,037

GREAT BRITAIN

Sept. 24—Easy conditions continue to prevail. Tonnage is not plentiful and stocks of both large and small coals are becoming heavier. Quotations are nominally as follows:

Best Welsh steam.....	Nominal	Best Monmouthshires....	\$5.52@5.67
Best seconds.....	Nominal	Seconds.....	4.80@5.04
Seconds.....	\$5.52@5.76	Best Cardiff smalls.....	3.84@4.08
Best dry coals.....	5.76@6.00	Cargo smalls.....	2.40@2.64

The prices for Cardiff coals are f.o.b. Cardiff, Penarth or Barry, while those for Monmouthshire descriptions are f.o.b. Newport, both net, exclusive of wharfage.

Freights—Outward chartering is a little more active with rates very firm all round. Rates are approximately as follows:

Gibraltar.....	\$5.28	Naples.....	\$7.68	St. Vincent.....	\$5.28
Marseilles.....	6.47	Alexandria.....	7.92	Rio de Janeiro.....	6.72
Algiers.....	5.40	Port Said.....	7.92	Monte Video.....	6.96
Genoa.....	7.68	Las Palmas.....	5.04	Buenos Aires.....	7.20

Coal Contracts Pending

The purpose of this department is to diffuse accurate information of prospective purchases and prices with a view to affording equal opportunity to all, promoting market stability and inculcating sound business principles in the coal trade.

†Indicates contracts regarding which official information has been received.

Recast

In the following table we give a list of all old contracts coming up for consideration during the ensuing week. The table gives out contract number, the name of the purchaser, city, tonnage and page on which the detail notice appeared.

No.	Purchaser	City	State	Tonnage	Page
866	Water-Works Dept.	Cleveland	Ohio		576
1456	County Government	Portsmouth	Ohio	5,000 bu.	530
1462	Adams Sch. Dist. No. 79	Wheelock	N. D.		530
1472	Board of Education	Alpena	Mich.		531
1476	Essex County Hospital	Cedar Grove	N. J.	10,000	531
1500	Board of Education	Punxsutawney	Penn.		577
1502	State Bd. of Regents	Bismarck	N. D.	4,000	577
1506	N. J. State Prison	Trenton	N. J.		577

Supplemental Notes

Under this heading additional or supplemental information regarding old contracts appears, together with the page number of the original notice.

No. 614—Titusville, Penn.—Bids on this contract (Vol. 7, p. 795), which provides for furnishing the local Board of Education with approximately 2,000 tons of Youghiogheny rescreened nut, slack and three-quarter lump coal, were received until Oct. 4, instead of June 1, as previously announced. Bids are to include cost of delivery in the coal bin at the high-school building. Address Ch. F. C. Kirkpatrick, Supply Com., Titusville, Penn.

†**1052—Savannah, Ga.**—The requirements on this contract (p. 116), which provides for the fuel requirements for the local Board of Education involved 328 tons last year. The business was let to the Vulcan Fuel Co., at \$8 per ton. Address Committee on Supplies, Board of Education, Savannah, Ga.

†**1234—Kansas City, Mo.**—Purchases on this contract (p. 283), which provides for furnishing the Consumers Bread Co. with approximately 150 tons of coal per month, will be confined to the open market. Address Pres. B. Howard Smith, Consumers Bread Co., Orear-Leslie Bldg., Kansas City, Mo.

1361—Davenport, Iowa—This contract (p. 411), providing for furnishing the Moline-Rock Island Manufacturing Co. and the Tri-City Railway and Light Co. with approximately 75,000 tons of 1½-in. screenings, does not expire until April of next year. Address G. W. Kuhn, Moline-Rock Island Co., Davenport, Iowa.

†**1370—Wheeling, W. Va.**—Bids will be received on this contract (p. 447), which provides for furnishing the local Board of Education with its coal requirements during the ensuing year, until 8 p.m., Oct. 18. All bids should include cost of delivery to the school buildings as required. This contract to become effective Nov. 15. Address Clk. Frank Stanton, Bd. of Edu., Wheeling, W. Va.

1441—New Orleans, La.—The award on this contract (p. 490), which provides for furnishing the New Orleans Cold Storage and Warehouse Co. with approximately 3,500 tons of coal is being delayed pending a thorough test of the various coals on which bids were submitted. Address Purchasing Agent, New Orleans Cold Storage and Warehouse Co., Gainnie and Front St., New Orleans, La.

†**1484—Sunbury, Penn.**—Bids have been received on this contract (p. 576), which provides for furnishing the County Government with pea coal, as follows per long ton: G. A. Nevi, \$2.90; C. A. Dagle, \$3.05; J. A. Wilkinson, \$3.35; J. A. Cross, \$3.50; N. B. Boyer, \$3.39. Address Controller Aaron Baker, Court House, Sunbury, Penn.

†**1497—Cleveland, Ohio**—This contract (p. 577), which provides for furnishing the Water Department with approximately 75,000 tons of coal, is now up for consideration, bids having been opened on Oct. 6. Address Comr. of Purchases and Supplies A. R. Callow, 511 City Hall, Cleveland, Ohio.

New Business

†**1522—Kearny, N. J.**—Bids will be received until noon, Oct. 19, for furnishing the New Jersey Home for Disabled Soldiers with approximately 1,200 gross tons of pea coal, and 100 tons of nut or stove coal. Deliveries are to be made during the year beginning Nov. 1. Address Vice-Pres., Edwin W. Hine, Bd. of Mgrs., New Jersey Home for Disabled Soldiers, Kearny, N. J.

†**1523—Williston, N. D.**—Bids will be received by the Board of Education of the Williston Special School Dist. No. 1 until 8 p.m., Oct. 12, for furnishing lignite coal as may be required during the ensuing school year. All bids must be accompanied by certified checks for \$50, and the successful bidder will be required to furnish a surety bond for \$1,000 guaranteeing the faithful performance of the contract. Address Pres. M. J. Borden, Central School Bldg., Williston School Dist. No. 1, Williston, N. D.

†**1524—Shenandoah, Penn.**—The West Mahanoy Township School for Boys received bids until 6 p.m., Oct. 1, for furnishing and delivering coal as required during the ensuing school year. Address Secy. Maurice Scanlan, West Centre St., Shenandoah, Penn.

†**1525—New Hampton, Iowa**—The county government received bids until 1:30 p.m., Oct. 11, for furnishing 200 tons of coal f.o.b., New Hampton. Address County Audr. P. E. McGinn, New Hampton, Iowa.

†**1526—Minerva, Ohio**—The Board of Public Affairs will receive bids until Oct. 13 for furnishing three-quarter coal as may be required during the ensuing year, f.o.b. cars at Minerva. A certified check for \$10 must accompany each bid. Address Secy. F. A. Unkefer, Bd. of Pub. Affairs, Minerva, Ohio.

†**1527—Flandreau, S. D.**—The City Government received bids until Oct. 5 for furnishing and delivering 13 to 15 cars of Youghiogheny lump coal to the City Pumping Station as may be required during the ensuing year. Address City Audr. J. R. Coonrod, Flandreau, S. D.

1528—Memphis, Tenn.—The South Memphis Brick Co. are preparing to contract for their annual fuel requirements involving approximately 10,000 tons of No. 2 lump coal. They have a storage capacity of 200 tons, and deliveries are to be made by railroad as required. Address Pur. Agt., John J. Bishop, South Memphis Brick Co., Madison St., Memphis, Tenn.

†**1529—Glasgow, Mont.**—The Valley County Board of Commissioners received bids until 2 p.m., Oct. 4, for furnishing and delivering Bearcreek coal for the Court House and Jail as may be required during the coming year. Address Clk. W. B. Shoemaker, Bd. of County Comrs., Glasgow, Mont.

1530—Highland Park, Mich.—The Ford Motor Co. at this place is receiving bids for supplying their annual fuel requirements, involving approximately 25,000 tons of mine-run and 14,000 tons of nut, pea and slack coal. Bids should be submitted on a delivered basis at the company's plant at Highland Park. Address N. A. Hawkins, Ford Motor Co., Highland Park, Mich.

†**1531—Wilmot, S. D.**—The Board of County Commissioners received bids until noon, Oct. 5, for furnishing and delivering approximately 100 tons of steam coal and 15 tons of anthracite. Address County Audr. O. E. Lien, Bd. of County Comrs., Wilmot, S. D.

†**1532—Yonkers, N. Y.**—The Board of Contract and Supply received bids until 3:30 p.m., Oct. 4, for furnishing and delivering approximately 200 tons of anthracite broken coal for the Yonkers Tuberculosis Commission. Address Secy. Edwin P. Walsh, Bd. of Contract and Supply, City Hall, Yonkers, N. Y.

1533—International Falls, Minn.—Sealed bids were received by the International Falls School Dist. No. 4 until 2 p.m., Oct. 2, for furnishing Youghiogheny screened lump coal to the public school as may be required during the ensuing school year. Address Clk. School Dist. No. 4, International Falls, Minn.

1534—Washington, D. C.—The Sargeant-at-arms of the United States Senate will receive bids until Oct. 20 for furnishing approximately 50 tons of best extra-hard, white ash anthracite coal, 40 tons of stove and 30 tons of chestnut.

Address Sargeant-at-arms, Chas. P. Higgins, U. S. Senate, Washington, D. C.

1535—Bisbee, N. D.—The Board of Education at this place received bids until Oct. 2 for furnishing either 80 tons of Youghiogheny or 160 tons of lignite coal, f.o.b. carload lots at this place. Address Clk. O. M. Ness, Bisbee, N. D.

1536—Wilmerding, Penn.—The Union High School Board will receive bids until 6 p.m., Oct. 12, for furnishing the High School with coal as may be required during the ensuing year. Address Secy. R. H. Ferguson, Union High School Bd. No. 4, Masonic Bldg., Wilmerding, Penn.

1537—Le Mars, Iowa.—The Haynes County Government is advertising for bids to furnish the Court House, Jail and County Poor with coal during the ensuing year. Address County Auditor, Le Mars, Iowa.

1538—Wellsville, Ohio.—The Board of Education at this place will receive bids until noon, Oct. 18, for furnishing the best grade Pittsburgh 1½-in. coal to the local school building during the ensuing year. Address Clk. F. H. Eckfeld, Bd. of Edu., Wellsville, Ohio.

1539—Woonsocket, S. D.—The Sanborn County Government received bids until 2 p.m., Oct. 5, for furnishing the local court house with Hocking Valley coal during the coming winter. Address County Audr. C. B. Jacobson, Woonsocket, S. D.

1540—Davenport, Iowa.—Bids were received until Oct. 2 for furnishing the Public Library with lump coal as may be required during the coming season. Address Librarian, Davenport Public Library, Davenport, Iowa.

1541—Scranton, Penn.—The Scranton School District received bids until 7:30 p.m., Oct. 11, for furnishing the Scranton Public Schools with stove, chestnut and pea coal and the Technical High School Boiler Plant with No. 1 buckwheat until July 31, 1916. All bids were to be accompanied by a certified check for \$200. Address Supt. of Bldgs. and Supplies G. E. Haak, Administration Bldg., School Dist., Scranton, Penn.

1542—Calvin, N. D.—Bids will be received until 6 p.m., Oct. 15, for furnishing the Grey School District with coal. Address Clk. Seacord Whitmore, Grey School Dist., Calvin, N. D.

1543—Frankfort, Ky.—The County Government will receive bids for furnishing coal required at the Franklin County Jail, Residence, Court House, Poor Farm, and on the road work, during the ensuing year. Bids were asked on lump, nut, slack, and mine-run coal, and bidders were required to distinguish between the cost of the coal and delivery. Address Clk. Crawford Lee, Franklin County Fiscal Court, Frankfort, Ky.

1544—Nebraska City, Neb.—The Otoe County Board of Commissioners received bids until noon, Oct. 11, for furnishing approximately 100 tons of bituminous and 40 tons of anthracite coal. The bituminous coal is to be delivered at the boiler house at Nebraska City, and the anthracite to be f.o.b. cars at Dunbar, Neb. Address County Clk. Louis J. Stutt, Nebraska City, Neb.

1545—Ocean City, N. J.—The Board of Education at this place received bids until 7 p.m. Oct. 11, for furnishing chestnut and pea coal in carload lots delivered in the bins at the school building as may be required during the ensuing year. Address L. E. Smith, Bd. of Edu., Ocean City, N. J.

1546—Bridgeville, Penn.—The School Board at this place will receive bids until 8 p.m., Oct. 15, for furnishing approximately 5,000 bushels of coal during the ensuing year. Complete information and specifications may be had on application. Address Secy. W. C. Thompson, School Bd., Bridgeville, Penn.

1547—Fremont, Ohio.—The Public Service Department at this place will receive bids until noon, Oct. 14, for furnishing various kinds of bituminous coal in carload lots as may be required by the local Water-Works during the year beginning Oct. 15. Address Clk. Ralph R. Williams, Dir. of Pub. Serv., Fremont, Ohio.

1548—Clearfield, Penn.—The Borough School Board received bids until 5 p.m., Oct. 12, for furnishing and delivering coal to the local school buildings as may be required during the ensuing year. Address Pres. A. D. Bigler, Clearfield School Bd., Clearfield, Penn.

1549—Trenton, N. J.—Bids will be received until 2:30 p.m., Oct. 15, for furnishing and delivering to the pumping station approximately 3,500 tons of bituminous coal and the municipal building about 300 tons. Proposals must be submitted on regular blank forms, accompanied by a certified check for \$500, and delivered in person to the city clerk. Complete details and blank forms may be had on application. Address Clk. Frank Thompson, City Hall, Trenton, N. J.

Contracts Awarded

Note—Successful bidders are noted in **bold face** type.

1100—Columbia, Mo.—This contract (p. 157), which provides for furnishing the University of Missouri with approximately 14,000 tons of coal during the year beginning Sept. 1, has been awarded to the **St. Louis Coal Co.**, on a B.t.u. basis at \$2.05 per ton for Nos. 4 and 5 mixed coal and \$2.30 for lump coal f.o.b. Columbia. The other bidders on this contract were the Consolidated Coal Co., St. Louis; Stonington Coal Co., Taylorville, Ill.; Whittle & Hockaday, Columbia, Mo.; The Shoel Creek Coal Co., Chicago; The West Virginia Co., Cincinnati, Ohio, and the Big Muddy Coal and Coke Co., St. Louis, Mo. Address Business Mgr. Edward E. Brown, University of Missouri, Columbia, Mo.

1237—Hamilton, Ohio.—This contract (p. 283), which provides for furnishing the Municipal Light and Power Plant with coal, has been awarded to the **Reliance Coal Co.**, Cincinnati, on Bluejacket bituminous from Kentucky. The contract involves approximately 11,000 tons of nut and slack coal and the consideration was \$1.84 per ton. Address J. O'Toole, Municipal Light and Water Plant, Hamilton, Ohio.

1261—Kenmare, N. D.—This contract (p. 324), which provides for furnishing the local Board of Education with coal during the coming season, has been awarded to **James Johnson**. Address Clk. J. M. Rohe, Kenmare, N. D.

1270—Lake City, Minn.—This contract (pp. 324, 530), which provides for furnishing the Municipal Electric Light and Water Plant with approximately 300 tons of coal, has been awarded on Island Creek coal at \$4.65 per ton for mine-run and \$3.65 per ton for screenings, both quotations being f.o.b. Lake City. Address Supt. M. J. Stowe, Municipal Electric Light and Water Plant, Lake City, Minn.

1274—Des Moines, Iowa.—This contract (p. 324), which provides for furnishing the Polk County heating plant with approximately 3,300 tons of coal, has been awarded to the **Carbon Coal Co.** at \$1.90 per ton. The county solicited bids this season through letters direct to dealers, and conducted a series of very exhaustive tests before letting the contract. The pounds consumed, prices per ton, amount of ashes and number of hours of the test, were recorded with the following results:

	Lbs.	Price	Total	Ashes	Hours of Test
Bennett Bros....	164,350	\$1.95	\$159.12	44,370	334
Carbon Coal Co.	131,970	1.90	125.21	26,730	338
Evans-Lloyd....	132,000	1.90	125.47	28,160	337
Dan O'Grady....	140,600	1.89	132.87	33,960	...

Address Board of Supervisors, Polk County, Des Moines, Iowa.

1280—Burlingame, Kan.—This contract (p. 324), which provides for furnishing School District No. 7 in Osage County with coal, as may be required during the ensuing year, has been awarded to the **Central Coal and Mining Co.** at \$2.90 per ton, delivered. Address Clk. F. M. Nelson, Burlingame, Kan.

1285—Bay City, Mich.—This contract (pp. 324, 489), which provides for furnishing the County Government with coal for the ensuing year, has been awarded to the **City Fuel and Supply Co.**, at \$3.40 per ton for steam lump. Address County Clk. C. L. Fox, Bay City, Mich.

1306—Billings, Mont.—This contract (pp. 366, 530), which provides for furnishing the local School District with approximately 1,000 tons of coal, to be delivered in the bin, has been awarded to the **Crystal Ice and Fuel Co.** at \$3.60 for No. 1 egg coal, \$3 for Nos. 1 and 2 nut mixed and \$2.60 for No. 2 nut. All coal is to come from the Bearcreek mines. Address Clk. A. J. Thorine, School Dis. No. 2, Yellowstone County, Billings, Mont.

1329—Plainview, Neb.—This contract (p. 367), which provides for furnishing the No. 5 District School Board with nut coal, has been awarded to the **St. Anthony & Dakota Elevator Co.**, at \$5.55 per ton. Address Secy. F. C. Holbert, School Dist. No. 5, Plainview, Neb.

1334—Parker, S. D.—This contract (p. 410), which provides for furnishing the County Government with approximately 100 tons of Virginia splint coal has been awarded to the Schoeneman Bros. Co., at \$6.15 per ton delivered in the bin. Address County Audr. O. M. Rasmussen, Parker, S. D.

1340—Livingston, Mont.—This contract (p. 410), which provides for furnishing approximately 200 tons of lump coal, has been awarded to **A. W. Willes Lumber & Coal Co.**, at \$4.75 per ton for 4-in. lump, and \$4.25 per ton for 2-in. lump. Address County Clk. Chas. A. Burg, Bd. of County Comrs., Livingston, Mont.

+1342—Boone, Iowa—This contract (p. 410), which provides for furnishing the Independent School District with its coal requirements during the ensuing year, has been awarded to **Racko Bros.** at \$3.25 per ton for the best lump Boone coal delivered at the schools. Address Secy. R. T. Duckworth School Dist., Boone, Iowa.

+1343—Brazil, Ind.—This contract (p. 411), which provides for furnishing the County Commissioners with coal during the ensuing year, has been awarded as follows: For County Jail and Orphans Home, **Hamlin & Heck Coal Co.**, of Brazil, screened bituminous, \$2.15, and mine-run, \$1.90; for the County Poor Farm, **John Weideroder**, of Center Point, Ind., screened bituminous, \$2.24, and mine-run, \$1.99. Address County Audr. W. O. Graeser, Bd. of County Comrs., Brazil, Ind.

+1347—Sullivan, Ind.—This contract (p. 411), which provides for furnishing the Board of County Commissioners with a year's supply of coal has been awarded to **R. R. Singer**, Sandborn, Ind., the gross consideration being \$10,279. Address County Audr. W. S. Bicknell, Bd. of County Comrs., Sullivan, Ind.

1358—Louisville, Ky.—This contract (p. 411), which provides for furnishing the Peter & Burghard Stone Co. with their annual fuel requirements involving approximately 40 carloads, has been awarded to the **Seanolon Coal Co.**, at \$1.45 per ton. Address Peter & Burghard Stone Co., 810 So. 13th St., Louisville, Ky.

1364—Traverse City, Mich.—This contract (p. 411), which provides for furnishing 7,000 tons of bituminous coal suitable for automatic chain grate stokers, has been awarded to the **Consolidated Coal Co.**, of Saginaw, Mich., on Saginaw washed nut, at \$3 per ton delivered. Address Steward George B. Pike, Traverse City State Hospital, Traverse City, Mich.

+1365—Pittston, Penn.—This contract (p. 446), which provides for furnishing the local School Board with coal during the ensuing year, has been awarded to **Newcomb Bros.**, the complete list of bids received on this business being as follows:

	Stove	Nut	Pea	No. 1 Buckwheat
Newcomb Bros.	\$4.22	\$4.22	\$3.18	\$2.55
J. A. Fitzpatrick.....	4.25	4.25	3.20	2.55
Joseph Kelly	4.25	4.25	3.20	2.55

Address Secy. James A. Joyce, Bd. of School Dir., Pittston, Penn.

1366—Chisholm, Minn.—This contract (p. 446), which provides for furnishing School District No. 40 with 2,100 tons of Pocahontas mine-run and 225 tons of Youghiogheny lump has been divided equally among the **Range Lumber Co., King Lumber Co. and Masaba Fuel Co.**, all of whom bid \$5.25 per ton on Pocahontas and \$5.35 per ton on the Youghiogheny, f.o.b. bins. Address Clk. M. Tripp, Independent School Dist., Chisholm, Minn.

+1381—Chicago Junction, Ohio—This contract (p. 447), which provides for furnishing the Board of Public Affairs with their annual fuel requirements involving approximately 2,500 tons, has been awarded to the **Loraine Coal and Dock Co.**, on No. 8 coal, at \$1.05 per ton for ¾ in. and 95c. for mine-run, both prices f.o.b. mine. The contract runs until Oct. 1, 1916. Address Clk. E. K. McMorris, Bd. of Pub. Affairs, Chicago Junction, Ohio.

1383—Miller, S. D.—This contract (p. 447), which provides for furnishing the Hand County Board of Commissioners with coal, has been awarded to **G. W. Van Dusen & Co.**, at \$11 per ton for anthracite nut, and \$7 per ton for bituminous coal the cost, including delivery as may be required. Address County Audr. D. A. Lewis, Bd. of County Comrs., Hand County, S. D.

+1387—Missoula, Mont.—This contract (p. 447), which provides for furnishing the City Government with coal, has been awarded to the **Rock Springs Coal Co.** on Round-Up lump at \$6 per ton. The Perry Coal Co. bid \$6.25, and the Inter-State Lumber Co., \$6.50 per ton for the same kind of coal. Address City Clk. L. E. Harris, Missoula, Mont.

1389—Yankton, S. D.—This contract (p. 447), which provides for furnishing the Board of County Commissioners with Hocking Valley coal until April of next year, has been awarded to the **Fred Donaldson Co.**, at \$6.60 per ton for screened coal, price including cost of delivery as ordered. Address County Audr. W. O. Nelson, Yankton, S. D.

1392—Anamosa, Iowa—This contract (p. 447), which provides for furnishing Jones County with approximately 150 tons of Christopher 6-in. lump coal, has been awarded to **O. P. Hanssen** at \$1.40 per ton. Address County Audr. E. J. Hines, Anamosa, Iowa.

Contract Notes

Cape Cod Canal—The Cape Cod Canal management announce that the canal is now open for vessels drawing 20 ft.

Moorhead, Minn.—The contract for furnishing the local schools with coal during the ensuing year has been awarded to **Harris Bros.**

Blue Earth, Minn.—The contract for furnishing the local School Board with coal has been awarded to the lowest bidder, **August Conrad.**

Southern Ry.—It is reported that the Southern Railway has greatly increased its coal purchases in the Barboursville, Ky., district to probably 10% above the normal.

New Orleans, La.—The contract for furnishing the Touro Infirmary with approximately 1,200 tons of Black Creek coal has been renewed with the **C. A. Andrews Coal Co.**

Rugby, N. D.—The contract for furnishing the local schools with lignite coal has been awarded to **Vobey Shute Co.**, and **O. S. Orr & Son** were awarded the contract for furnishing bituminous coal.

Knightstown, Ind.—The Knightstown water-works has awarded its contract, involving approximately 2,500 tons of coal, to the **West Virginia Pocahontas Coal Sales Corporation** on their Panther mine-run coal.

Spain—An American consular officer in Spain writes that a business man in his district desires to represent American exporters of coal. New York City references given. Correspondence should be in Spanish.

Hankinson, N. D.—The Brightwood, Ind., School Dist. has awarded a contract for furnishing and delivering 75 tons of Hocking Valley coal to the **Atlantic Elevator Co.** Address Clk. H. A. Merrifield, Brightwood, Ind., School Dist., Hankinson, N. D.

Huron, S. D.—The **J. F. Anderson Lumber Co.** has been awarded the contract for furnishing approximately 400 tons of Youghiogheny screened lump, Pocahontas and anthracite coal to the city government. The prices were: Youghiogheny screened lump, \$6.20; anthracite, \$10 to \$10.25; Pocahontas, \$7.80 and \$7.55.

Honolulu—A big deal is reported by the "Japan Mail" between the Hokkaido Tanko Kisen Kaisha and the Inter-island S. N. Co. at Honolulu for the supply of 130,000 tons of Yubari coal. The first shipment has just been made. This is the first big export of Japanese coal to Hawaii, which has heretofore bought Australian coal.

New Orleans, La.—The Audubon Ice Manufacturing Co., of this city, which uses about 3,000 tons of coal yearly, is in the market for prices and specifications on run of mine coal. Heretofore they have purchased directly at the mines, not on contract. Address General Manager Audubon Ice Manufacturing Co., Dublin and Hampson St., New Orleans, La.

Marshalltown, Iowa—The County and Municipal contracts at this place have been awarded as follows: For furnishing the city poor with lump coal, **Gregory Coal, Coke and Lime Co.**, \$4.50 per ton delivered; for furnishing the County Heating Plant with steam coal to **Blackhawk Fuel Co.**, \$2.75 per ton delivered; for furnishing the County Farm with mine-run coal, **Geo. O. Coburn**, \$2.87 per ton.

Chile, S. A.—A firm in Chile desires to communicate with American exporters of coal suitable for household use. Imports will be made, if qualities and prices are suitable, in cargo lots. The firm is disposed to place a sample order for 500 tons at once. It is stated that steamers arriving at Chilean ports with coal would have no difficulty in obtaining return cargoes of nitrate or minerals for the United States.

Philadelphia, Penn.—The unusually large exports of coal continue to foreign ports, shipments being made in vessels of all kinds. Three sailing vessels were recently chartered to carry coal to Brazil. As a matter of fact sailing vessels are now being chartered for all ports. Another large order was placed for delivery in France amounting to 2,000,000 tons at a delivered price of \$15 per ton, including freight. This coal it is understood will retail in France at from \$22 to \$27 a ton.

Little Rock, Ark.—The recent awarding of a big contract for coal to the Merchants Transfer Co. by the local school board has precipitated a legal fight. Chancellor Martineau handed down an opinion in which he said that the Board had acted "contrary to public policy" in making a contract with a firm of which one of its members was head, and that therefore the contract was void. The board has canceled the contract and the suit has been dismissed. It is understood that the contract is still open. Address Little Rock School Board, Little Rock, Ark.